GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES

E - Procurement Notice No. CE-DR-CTC-06/2026-27

BID IDENTIFICATION NO. CE-DR-CTC/DD-KHR–06/2026-27

TENDER DOCUMENT
(TECHNICAL BID)
(COVER-I)

FOR THE WORK

Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre

CHIEF ENGINEER
DRAINAGE, KATAKA

CONTRACTOR

EXECUTIVE ENGINEER
DRAINAGE DIVISION, KHORDHA

NAME OF WORK: **Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre**

BID IDENTIFICATION NO:- **CE-DR-CTC/DD-KHR-06/2026-27**

Sd/-

Chief Engineer
Drainage, Kataka

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 equipments, appliances or things of whatsoever nature required for the execution, or completion, maintenance of the works or temporary works but do 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 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 **Executive Engineer, Drainage Division, Khordha** 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 **Executive 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 Executive 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 term “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.

k) Year - Means Financial Year.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

CONTENTS

Section	Items	Page No.
Section-1	Detailed Tender Call Notice	5-27
Section-2	Information & Instruction to Bidders	28-33
Section-3	General Rules and Direction	34-37
Section-4	Condition of Contract	38-66
Section-5	Special Condition of Contract	67-73
Section-6	Technical Specification	74-142
Section-7	Drawings	143-143
Section-8	Forms	144-156
Section-9	Bill of Quantity	157-164

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 1

DETAILED TENDER CALL NOTICE

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

GOVT. OF ODISHA
DEPARTMENT OF WATER RESOURCES
OFFICE OF THE CHIEF ENGINEER, DRAINAGE
KATAKA, GANDARPUR-753003
****

E-PROCUREMENT NOTICE NO. CE-DR-CTC-06/2026-27

email Id :- cedrainage@gmail.com

1.	Name of Works	:	Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre.
2.	Nature of Work	:	i. Dredging ii. Earthwork iii. RCC structure work iv. PH work
3.	Total number of Packages	:	1 no. individual package.
4.	Estimated Cost	:	Rs. 1216.92 Lakh
5.	Bid Identification No.	:	CE-DR-CTC/DD-KHR–06/2026-27
6.	Period of completion	:	18 (Eighteen) Calendar months.
7.	Availability of Tender On - Line.	:	16.10.2026, 16.00 hours to 03.11.2026, 17.00 hours.
8.	Date of Opening of Technical Bid.	:	04.11.2026 at 11.30 hours in the O/o the Chief Engineer, Drainage, Kataka.
9.	Class of Contractor	:	"A" & "Special" Class.
10.	Bid Security/EMD	:	Rs. 12,17,000/-(To be remitted online)
11.	Cost of Tender paper	:	Rs.10,000/-
12.	Procurement Officer	:	Chief Engineer, Drainage, Kataka, Gandarpur-753003

Further details can be seen from the Govt. web site www.tendersorissa.gov.in. Addendum / Corrigendum/ Cancellation if any required will be published only in Govt. web site www.tendersorissa.gov.in

Sd/-
Chief Engineer
Drainage, Kataka

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES
OFFICE OF THE `CHIEF ENGINEER, DRAINAGE, KATAKA, GANDARPUR-753003
INVITATION FOR BIDS (IFB)
BID IDENTIFICATION NO. CE-DR-CTC/DD-KHR-06/2026-27

The Chief Engineer, Drainage, Kataka on behalf of Hon'ble Governor of Odisha invites on-line Percentage Rate tender through e-procurement for execution of the work mentioned below under **Deposit** Head .The bid should be submitted on-line in the Government website www.tendersorissa.gov.in by eligible class of contractors as mentioned below registered with State Governments / Central Government / Government undertakings / MES / Railways / other statutory authorities for execution of works to be eventually drawn in P-1 form through on-line in the Government website www.tendersorissa.gov.in. The bidders should have necessary portal enrolment (with own digital signature certificate). 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 appropriate authority of the State Govt. within a month of acceptance of bid.

1.	Name of work	:	Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre
2.	Class of contractor	:	"A" & "Special" Class (Odisha PWD or relevant class of other licensing Authority).
3.	Approximate value of work	:	Rs. 1216.92 Lakh
4.	Time for completion	:	18 (Eighteen) Calendar months.
5.	EMD/ Bid Security Required	:	Rs. 12,17,000/- (To be remitted online)
6.	Cost of tender paper	:	Rs.10,000/- per set (Non-refundable) only to be remitted / transferred online as mentioned in Detailed Tender Call Notice with the Technical Bid (Cover-I).
7.	Mode of submission of Tender.	:	Tender should be submitted on-line in www.tendersorissa.gov.in

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

8. Period of availability of tenders on-line/ date of time of bidding on-line/ last date of seeking clarification/ date of opening of tender papers. : Details as follows:-

Procurement officer.	Bid Identification No.	Availability of tender on-line for bidding		Last date & time of seeking tender clarification	Date & time of opening of Technical Bid
		From	To		
Chief Engineer, Drainage, Kataka	CE-DR-CTC-DD-KHR-06/2026-27	16.10.2026 16.00 hours	03.11.2026 17.00 hours	28.10.2026 up to 17.00 hours	04.11.2026 at 11.30 hours

Each set of bid document contains Technical Bid (Cover-I) and Price Bid (Cover-II) i.e. an intelligent bill of quantity in MS Excel format. The cover-I bid will be opened on **04.11.2026 at 11.30 hours** in the **O/o Chief Engineer, Drainage Kataka** in presence of the tenderer or their authorized agents. The bidders and guest users can view the summary of opening of Bids from any system. Contractors are not required to present during the bid opening at the opening location if they so desire. The bids can only be opened by the pre-designated officials only after the opening time mentioned in the bid. In the event of the specified date of bid opening being declared a holiday the bid will be opened at the appointed time and location in the next working day.

9. **Definitions**

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

l) Approved / Approval – Means approved in writing.

m) Construction Plant – Means all equipments, appliances or things of whatsoever nature required for the execution, or completion, maintenance of the works or temporary works but do not include materials or other things intended to form or forming part of the permanent work.

n) Contract – means the instruction and information for tenderers General and Special related to the above.

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

p) Drawing – Means the drawings referred to in the specifications, any modifications of such drawings approved in writing by the **Executive Engineer, Drainage Division,**

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

Khordha and such other drawings as may from time to time be furnished or approved in writing by the Engineer-in-Charge.

q) Engineer-in-Charge–Means the Executive 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 Executive Engineer, in-charge may have delegated certain duties, acting separately within the scope of particular duties entrusted to them.

r) Government – Means Government of Odisha, Department of Water Resources.

s) I.S.S. / B.I.S. – Means Indian Standard Specifications / Bureau of Indian Standard.

t) Temporary Works – Means all temporary works of every kind required for the performance of the contract.

u) Specification – Whenever the term "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.

v) Year - Means Financial Year.

10. 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.

11. No tenderer will be permitted to furnish their tender in their own manuscript.

12. Bid Security / EMD @ 1%, of the amount put to tender i.e **Rs.12,17,000/- for Bid Identification No.CE-DR-CTC-DD-KHR-06/2026-27** as per OM No-18138 dated 5/12/18 must be accompanied with tender.

13. The lowest preferred bidder is required to produce documents in original i.e. Registration Certificate (R.C.), valid GST Registration Certificate, GSTIN, PAN Card, Affidavit regarding authenticity of the tender documents, certificate issued by the competent authorities required for fulfilling eligible criteria as specified in the bid document. NRC along with ownership and hiring of plants and machineries etc which were uploaded in the e-procurement portal during submission of tender to the inviting authority within the stipulated period i.e. within 5 days from date of opening of financial bid /lottery as applicable for verification. Bidder has to submit the original affidavit regarding authenticity of the documents to the inviting authority.

14. (a) Providing facilities to the Engineer contractor

i) As per works Department No.FR-11/2001/10003/00 Bhubaneswar dtd 24.5.01, 5% price preference allowed to the 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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

(c) Engineering Contractor desirous to avail EMD exemption have to submit affidavit to the effect that they have not yet availed 03(three) nos. of EMD exemption during the financial year 2026-27 and to upload the same in the e-procurement portal. He has to show the original registration certificate to the tender inviting authority as and when required for confirmation. The Financial Year means the year of bid invitation. The bid will be liable to be disqualified for non-submission of affidavit in support of EMD exemption in the manner mentioned above.

(d) The local Micro, Small and Medium Enterprises (MSME) **will not be** allowed for exemption of Bid Security / EMD at the time of participation in Tender with effect from 05.03.2025 vide O.M. No.4281 Dt.05.03.2025 of Govt. of Odisha, Works Department.

15. The work is to be completed in all respect within **18 (Eighteen)** calendar months from the date of issue of work order.

16. The plans specifications and scope for the work can be seen in the office of the **Executive Engineer, Drainage Division, Khordha** during any working days.

17. 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 **Executive Engineer, Drainage Division, Khordha .** Complaint at a future date that plans and specifications have not been seen by the tenderers cannot be entertained.

18. The bidder can resubmit his bid through online e-procurement mode out of which the system shall consider only the last bid submitted to the portal.

19. 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 contractors would, however, be responsible for procurement of materials from authorized sources and voluntarily disclose the source 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.

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

conditions, difficulties that may be encountered during its progress and to have quoted labour rates and materials, 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. In the course of awarding a work, the Department may desire the analysis of the rate arrived for against any item(s) of work. The estimated cost is excluding GST. The rate of item basing on which estimate cost has been derived are excluding GST of different components to arrive such rates.

20. Each tenderer must quote a definite percentage upto two decimal points. Tenders containing indefinite terms such as estimated rates or schedule of rates or percentage basis will not be considered.

21. All rates should be for finished items of work unless otherwise mentioned in the tender schedule.

22. 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 rates in figures at the appropriate locations. The total amounts shall be calculated automatically and shall be visible to the bidder. The bidder is not supposed to change or modify the format of the excel sheet in any form. Bidders are to submit only the original BOQ updated by publisher after entering the relevant fields without any alteration/deletion/modification. Multiple BOQ submission shall lead to cancellation of bid. In the percentage rate tender the bidder quoting zero value is valid and will be taken as schedule of rates.

23. 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 i.e **28.10.2026 up to 17.00 hours.** The employer is responsible for the queries raised by the bidder will be posted in the portal.

24. The bidder shall submit the documents in the designated locations of technical bid (Cover-I) and Financial bid (Cover-II). 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 document or provides illegible documents. Clarity of the document may be ensured by taking out a sample printing.

25. All royalties payable, Income taxes & Surcharges as applicable will be borne by the contractor as admissible. It is implied that the quoted rates are inclusive of such elements.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

26. Labour Welfare Cess @ 1% will be deducted from the work bill of the contractor as per resolution No. 12653 dt. 15.12.2008 of Labour & Employment Department, Government of ODISHA

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

28. Conditional tenders will not be taken in to consideration.

29. The tender containing extraneous conditions not covered by the tender notice are liable for rejection and quotations should be strictly in accordance with the tender call notice. Any change in the wording will not be accepted.

30. 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.

31. 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 the portal in respective bid. The system shall not allow any withdrawal after expire of the closure of the bid.

32. 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.

33. All tenders received will remain valid for 90 days from the date of opening of the tender and validity of tenders can also be extended if required without any monetary compensation.

34. **No Relation Certificate**

The contractor shall have to furnish no relation certificate in attached form along with the tender to the effect that he is not related to any officer in the rank of an Assistant Engineer and above in the State P.W.D. or Under Secretary and above in the Water Resources Department., If the fact subsequently proved to be false the contract will be rescinded. The earnest money and the total security will be forfeited and he/she shall be liable to make good the loss or damage resulting from such cancellation.

35. 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, valid GST Registration Certificate GSTIN

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 Executive Engineer concerned.

36. 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 should be refunded on application. The EMD given by the other two parties except one whose tender is accepted should also be refunded within 15 days of acceptance of tender and drawl of agreement. After Award of Contract the EMD already transferred @1% shall be refunded to the successful bidder.

37. 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, certificate 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.

38. After careful observation, Government has been pleased to abolish the extant provisions of threshold negative bid caps (14.99%) introduced in Appendix-IX, Clause 36 of OPWD Code Volume-II in the procurement of works undertaken by the Govt of Odisha and its agencies to ensure the procurement process results in a viable and successful manner with adoption of following incremental Additional Performance Security (APS) system **(Communicated vide OM No- 07764600022025-173/W Dated 03.01.2026 of the Works Department, Govt. of Odisha).**

Additional performance security shall be taken on an incremental basis from the selected bidder for low bid prices in the project works as under:

(a) **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.

(b) **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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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.

(c) **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 addition to 1% of the bid price and this additional performance guarantee percentage shall be applied on the bid price.

(d) 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.

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

(f) 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.

(g) Ammendment of codal & Contractual Provisions, of Govt. of Odisha Works Department Office Memorandum No.07764600022025-17941/W., Bhubaneswar Dtd. 08.10.2026 to be followed.

(h) If more than one bid is found to be lowest, the tender accepting authority will finalize the tender through a transparent lottery system. If the 1st lowest bidder does not turn up for agreement after finalization of tender, then he/she shall be debarred from participation in bidding for three years & action will be taken to black list the contractor as per codal provision in Appendix-IX (A) of OPWD-Vol.-II regarding e-procurement

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

vide Office Memorandum No.7885/W Dated 23.07.2013 clause No.22.3.

(i) The applicable Additional Performance Security (APS) in shape of N.S.C./ Post Office Savings Bank Account/ Post Office Time Deposit Account / KISSAN VikasPatra / Term Deposit Receipt of National Scheduled Bank / Bank Guarantee in favour of the **Executive Engineer, Drainage Division, Khordha** from any Nationalized Scheduled Bank in India counter guaranteed by its local branch at Bhubaneswar / e-Bank Guarantee executed on the National e-Governance Service Limited (NeSL) Digital Document Execution Portal within 7(seven) days of issue of Letter of Acceptance (LoA) by the **Executive Engineer, Drainage Division, Khordha** (by e-mail) to the successful bidder otherwise the bid of the successful bidder shall be cancelled and the Earnest Money Deposit / Bid Security shall be forfeited. Further, proceeding for blacklisting shall be initiated against the bidder. (As per Works Department office Memorandum No.14459/W dated 20.09.2018) & 1499/W dated 01.02.2023

The time and venue of the lottery shall be uploaded in the tender Portal at the time of uploading financial bid opening summary sheet.

39. The phrase **".... Departmental Technical Committee and recommended to the competent authority of the Administrative Department..."**appearing in Para-VI of Clause-1 of Works Department Office Memorandum No. 173 dated 03.01.2026 may be read as**"…… Technical Committee and recommended to the competent authority for Acceptance of Tenders as per Para-6.3.15 of OPWD Code Volume-1..."** (As per Works Department office Corrigendum No.07764600022025-14560/W dated 11.05.2026.)

40. 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 @ 2% of the accepted tender amount** in shape of NSC / Post Office Savings Bank Account / Post Office Time Deposit Account / Kisan Vikas Patra / Bank Guarantee in favour of **Executive Engineer, Drainage Division, Khordha** from any Nationalized / Schedule Bank in India counter guaranteed by its local Branch at Bhubaneswar / e-Bank Guarantee executed on the National e-Governance Services Limited (NeSL) Digital Document Execution Portal towards E.M.D. / Initial Security Deposit / any other Security Deposit from the Contractor or Supplier and sign agreement in the P.W.D. form No.P1 (Schedule XLV No.61) for the fulfillment of the contract in the office of the **Executive Engineer, Drainage Division, Khordha .** 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

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

contractor and the Govt. and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officer authorized to enter into the contract on behalf of the Govt.

"Security for the due fulfillment of a contract should invariably be taken. The security may be taken in shape of NSC / Post Office Savings Bank Account / Post Office Time Deposit Account / Kisan Vikas Patra / Bank Guarantee in favour of Divisional Officer from any Nationalized Schedule Bank in India counter guaranteed by its local Branch at Bhubaneswar / e-Bank Guarantee executed on the National e-Governance Services Limited (NeSL) Digital Document Execution Portal/ Insurance Surety Bond issued by an Insurance Company authorized by the Insurance Regulatory and Development Authority of India (IRDAI). Such instruments shall be accepted towards Earnest Money Deposit (EMD) / Initial Security Deposit / any other Security Deposit from the Contractor or Supplier" (Ref. Works Department letter no. WORKS-FA-MISCSB-0003-2026 /4909 dt 12.03.2026).

41. 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 Deptt order No. 17823/WE dt. 11.10.2006.

42. Before acceptance of tender, the successful bidder will be required to submit a work programme and milestone both physical and financial so as to complete the work within the stipulated time and in case of failure on the part of the agency to achieve the milestone liquidated damage will be imposed as per condition of contract (section-4)

43. 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.

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

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

46. On no account, the contract work should be sublet to anybody without the prior approval of the Tender accepting authority of the Department. In such an event the contract may be rescinded.

47. 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

48. The work may be split 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.
49. 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.
50. Under section12 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.
51. The contractor shall be liable to fully indemnnify 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.
52. 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.
53. 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 the contractor is found to be at fault, Executive Engineer may recover such amount due in any form 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 Executive Engineer is final and binding on the contractor.
54. The contractor will have to submit the **Executive Engineer, Drainage Division, Khordha** monthly return of labour both skilled and unskilled employed by him on the work.
55. 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.
56. 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.
57. 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 quantity of any item of work is taken up.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

58. 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.

59. 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 & all other taxes including 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. GST on works contract as applicable at the time of payment of R/A bill shall be paid extra over the gross amount of R/A bill.

(b) Labour camps or hutments including conservancy and sanitation arrangements upto 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.

60. In case of delay in acquisition of land handing 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.

61. 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

62. 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.

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

64. 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**…. + surcharge).

65. (a) The rates quoted by the contractor shall be deemed to be exclusive of GST 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 exclusive of GST that may be levied on turnover on works contract according to the Laws and Regulations as applicable from time to time.

(c) Deduction of GST at source will be made from each running account bill for the work prescribed by Odisha Goods & Service Tax Act-2017 or amended from time to time.

(d) 1 % (One percent) of the gross amount of the bill will be deducted from the contractor bill towards labourcess as per Odisha building and other construction workers (RE & CS) rules 2002 and Amendment during 2008 and as amended by Govt. from time to time.

66. 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.

67. 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.

68. 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 SDO**, Drainage Sub-Division No.-II, Bhubaneswar** before the

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

procurement for testing and acceptance. The transportation & testing charges of construction materials will be borne by the contractor.

69. 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.

70. 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.

71. 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.

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

73. 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.

74. 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.

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

76. **An affidavit shall be furnished by the contractor** at the time of submission of tender paper about the authentication of tender documents. 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 after opening of the tender positively.

77. 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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

considered by the Department if the discontinuance of the work is beyond the reasonable attempts of the contractor to such eventualities.

78. 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.

79. 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.

80. 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 over the entire work to the Department.

81. 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.

82. Incase of discrepancy revealed between **P_1 form** and Detailed Tender Call Notice, condition in P_1 form shall prevail over the Detailed Tender Call Notice.

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

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

85. If the 1st lowest bidder does not turn up for agreement after finalization of tender, then he shall be debarred from participation in bidding for three years & action will be taken to black list the contractor as per Codal provision in Annexure-II of Amendment to Para-3.4.14 Note-I of OPWD Code Vol-1.

86. Engineering contractor who is desirous to avail the facility of exemption of EMD is required to submit the affidavit (Duly signed by the Oath taking Commissioner/Notary) in online to the effect that he/she has not yet availed the facility for more than two works already awarded to him/her during the current financial year, failing which the tender will be liable for rejection.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

87. **GENERAL INSTRUCTION TO CONTRACTORS (as per DOWR letter No.20415 dt.14.09.2015)**

(a) Any agency or contractor executing a work should be aware about the local festivals like Makar Sankranti, Raja Sankranti, Chaiti Parab, Danda Nata or any such festivals which may effect the work schedule. Therefore, the contractor should engage more work forces during working period available at his disposal to complete the work as per schedule.

(b) In the peak summer season, working hour is curtailed by the Labour Department to avoid exposure to personnel to the scorching sun and heat. It is the duty of the agency to increase the number of work force and to employ the existing work force during morning and afternoon hours as per Government orders.

(C) Rainfall is a normal occurrence during monsoon in Odisha. So, unless there is unusually heavy rainfall resulting in a declared calamity, the contractor is not eligible for any extension of time. The contractor should plan the deployment of workforce and machinery, so as to complete the work as per schedule considering ordinary vagaries of nature.

The same applies for borrow area ponding also. The contractor should foresee possible

ponding of borrow area in monsoon and likewise lift more quantity of soil/ other materials during dry period, so as to complete the work as per schedule.

(d) The contractor should take up the work with due diligence in the acquired land without waiting for acquisition of entire land. This should be completed in proportionally less period depending on the quantum of available work front.

(e) The Agency should plan his work-programme and mobilize men and machineries considering the canal closure programme of a particular system or area. Kharif / Rabi closure can't be imposed arbitrarily on the farmers as per the convenience of the agency. Closure of canal for the interest of work will be solely at the discretion of the Engineer-in- charge and can't be claimed as a matter of right.

(f) There will be always be standing crop before harvesting season as per crop schedule and this fact has to be clearly understood by the agency. Extension of time on this ground may not be considered by the Division officer.

(g) Only the day(s) of elections to the Local Bodies / Assembly / Parliament will be treated as non-working day(s).

88. **REMOVAL OF CONTRACTOR'S MEN**

The Engineer in-Charge shall be at liberty to object to and require the contractor to remove forthwith from the works any person employed by the contractor in or about the execution or maintenance of the works, who in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the works without the written permission of the Engineer. Any person so removed from the works shall be replaced as soon as possible by a competent substitute approved by the Engineer in-Charge.

89. **BRIBERY AND COLLUSION**

The Employer shall be entitled to terminate the contract and recover from the contractor the amount of any loss resulting from such termination if the contractor shall have offered or given to any person any gift or consideration of any kind as an inducement or regard for doing, or for agreeing to do, any action in relation to obtaining, or in the execution of the contract or any other contract with the Employer for showing favor to any person in relation to the contract or any other contract with the Employer, or if any of the like acts shall have been done by any person employed by the contractor or acting on his behalf (whether with or without the knowledge of the contractor) , or if the contractor or number of contractors whereby an agreed quotation or materials shall be offered as a bid to the employer by one or more Contractors.

90. THE CONTRACTOR HAS TO MENTION PERCENTAGE EXCESS OR LESS OVER THE AMOUNT PUT TO TENDER.

91. The contractor will write percentage excess or less up to two decimal point only if he writes the percentage excess or less up to more than two decimal point, the two decimal point shall only be considered without rounding up.

92. A bidder can submit only one tender paper for a particular work, submission of more than one tender paper by a bidder for a particular tender will liable for rejection of all such tender papers as per Works Department Letter No.4985/W dt.28.03.2007.

93. The single tender received in the first call shall be cancelled without opening of the bid. The acceptance of a single tender received, even after retendering should have prior approval of the next higher authority as per Works Department Memorandum No.16 dt.01.01.2015.

94. **Joint ventures are not allowed in this tender.**

95. Imposition of penalty in EOT / Deviation in case of complete / incomplete work will be as per the DOWR Letter No.699 dt.07.01.2021. (Copy enclosed as annexure-II of section-1 of tender document).

96. There will be no defect liability period for dredging works however, the agency has to follow basic principles of dredging to minimize siltation of dredged area.

97. Experience Certificate / performance record issued by the Engineer-in-Charge (Divisional Officer) to State PSUs and Experience Certificate issued by State PSUs to their Sub-Contractor, shall be taken into consideration, while examining qualifying criteria. The Experience Certificate issued by the state PSUs must carry the counter signature of the concerned Engineer-In-charge not below the rank of Executive

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

Engineer/ Superintending Engineer. In that case, both the original State PSUs and the authorized Sub-Contractor will be treated as per prime contractor.

98. The rate of item is inclusive of DMF, EMF and additional charges of the quarries fixed by the Dist. Collector and Magistrate as applicable has to be deducted from each RA bill as similaras in case of Royalty.

99. 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.

100. The bids of the technically qualified bidders will be opened for evaluation of the price bid.

101. 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 tender.

102. The documents as per checklist and/or as requested to be submitted with the tender, failing which bid will not be considered for evaluation.

103. Authority reserves the right to reject any or all the tenders without assigning any reasons thereof.

104. Defect Liability-The contractor shall be responsible to make good at his own expense, any defect which may develop or may be noticed before the expiry of twelve months from the certified date of completion and which is attributable to the contractor. All notices of such defect shall be given to the contractor promptly. In case the contractor fails to make good the defects, the **Executive Engineer, Drainage Division, Khordha** may employ other persons to make good such defect, and all expenses consequent thereof and incidental thereto shall be borne by the contractor.

In the event Government takes over portions of works, as they are completed, the liability of the contractor under this clause for those portions shall extend to a period of thirty-six months from the actual date on which portions of the works are taken over.

105. Any balance of the security money outstanding after completion of the contract with the bidder may be made up by deduction of 5% of the amount of each payment to be

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

made to him under clause of the condition of contract for work done under the contract.

106. Authority reserves the right to reject any or all the tenders without assigning any reasons thereof.

Address of Communication :

Chief Engineer,
Drainage, Kataka
753003, Odisha ,
Ph. No(E.E. DD,Khordha) -7008092993
Email-Id-cedrainage@gmail.com

Sd/-
Chief Engineer,
Drainage ,Kataka

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

1. The work is to be completed in all respect within **18 (Eighteen) calender months** from the date of issue of work order.

2. Schedule of quantities are accompanied in DTCN. It shall be definitely understood that the Government does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable for alternation or omissions, deductions or alternations set forth in the conditions of the contract and such omissions, deductions, additions or alternations shall no way invalidate the contract and no extra monitory compensation, will be entertained.
3. Tenderer, whose tender is accepted must submit “programme of work” at the time of execution of agreement in prescribed format for approval of Engineer-in-charge.
4. As Goods and Service Tax has come into force with effect from 01.07.2017, GST as applicable will be paid extra after gross bill amount prepared vide Section-51 and Section-142 (11-C) of Odisha Goods and Service Tax Act 2017.
5. (a)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 with stipulation that the rates will not be less than the rates provided in the sanctioned estimate of the work. The rates for Royality, Environment Management Fund (EMF),District Mineral Foundation(DMF), and any other applicable statutory charges shall be adopted as per the provisions of the Odisha Minor Mineral Concession (OMMC) Rules, as amended from time to time.

   (b)Additional Charge for Minor Minerals shall be twice of the royalty applicable for unit quantity of the respective Minor Minerals as per notification No-1194 dated 02.02.2026 of Steel & Mines Department, Govt. of Odisha.

   (c) Cost of empty cement bags as per consumption for the work will be recovered from each running bills/ final bill at prevailing Schedule of Rate, Govt. of Odisha.

   The rate of royalties adopted in the sanctioned estimate of the work is as follows: -

   1. Earth/ Sand/ Moorum – Rs. 35.00/ Cum.
   2. Stone & stone product – Rs. 130.00/Cum.

6. 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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

Executive Engineer will be taken in case of pit measurement with size of pits etc. where level section measurements cannot be made.

7. 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.

8. The measurement of fine dressing & turffing will be taken after satisfactory full growth of the turf and as well as survival of turf.

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

10. The language of all bidding documents and bidding process shall be in English for all purposes. The bid submitted in any other languages except English shall not be accepted.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 2

INFORMATION AND INSTRUCTION TO TENDERERS

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION-2

Government orders

- Notification No-1194 dated 02.02.2026 of Steel & Mines Department, Govt. of Odisha.
- Letter No-699 dated 07.01.2021 of DoWR, Govt. of Odisha.
- Proceedings of the meeting on Tender related matters of Department of Water Resources held on 20.10.2020 at 3.30 PM through virtual conference.
- Office Memorandum No-1437 dated 31.01.2023 of Works Department, Govt of Odisha.
- Office Memorandum No-1739 dated 03.02.2023 of Works Department, Govt of Odisha.
- Office Memorandum No-4281 dated 05.03.2025 of Works Department, Govt of Odisha.
- Office Memorandum No-18138 dated 05.12.2018 of Works Department, Govt of Odisha.
- Letter No-01 dated 01.01.2019 of DoWR, Govt. of Odisha.
- Guidelines/ Procedures of e-Procurement Appendix-IX (A) of OPWD Code Vol-II
- Office Memorandum No-12366 dated 08.11.2013 of Works Department, Govt of Odisha.
- Office Memorandum No-16 dated 01.01.2015 of Works Department, Govt of Odisha.
- Electronic Receipt, Accounting and Reporting of cost of Tender Paper and Earnest Money Deposit on Submission of Bids (As per Office Memorandum No-17254 Dated 05.12.2017 of Works Department, Government of Odisha)
- Office Memorandum No-4718 Dtd.11.03.2026 of Principal secretary to Govt.
- Office Memorandum **No- 07764600022025-173/W Dated 03.01.2026 of the Works Department, Govt. of Odisha**
- OFFICE MEMORANDUM No. 07764600022025-17941/W -Bhubaneswar Dt.08.10.2026

The provisions in above Office Memorandum / Letters of DoWR / Guidelines/Procedures of e-Procurement Appendix-IX (A) of OPWD Code Vol-II to be followed.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

1. Preparation of Tender Documents

The intending bidder shall log in to the e-procurement portal identified as http://tendersorissa.gov.in and download the Technical Bid (Cover-I) and Price Bid (Cover-II) in shape of a bill of quantity in MS Excel format. As per the requirement of the bid document the bidder will fill up the required information and fill up the percentage in figures on the bill of quantity in MS Excel sheet. The bidder is to scan his registration certificate, valid GST certificate, GSTIN, PAN Card, Affidavit, No relation certificate and certificate issued by competent authorities required for full filling the eligibility criteria specified in the bid document for the work. The bidder is also required to scan the other documents as specified in the bid document.

2. Method of submission of Tender Documents

2.1 The bidder 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 technical bid (Cover-I) except the filled up intelligent excel sheet. The filled up intelligent bill of quantities in Excel format will be uploaded in the designated location of price bid (Cover-II).

The bidder is required to upload the required documents in appropriate location of Technical and Financial 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 will be forfeited.

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

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

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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

2.5 If the intending bidder is a firm in partnership, it shall be digitally signed by a partner holding the power of attorney to bidder or to 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 bidder 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 bidder 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.

2.9 The period of execution is 18 (Eighteen) calendar months. Codal / contractual provisions regarding Price adjustment in Works contract is applicable as per O.M No-15847/W dated 19.11.2019 of Works Deptt., Govt. of Odisha.

3. Opening of Tender Documents.

The bids will be opened on **04.11.2026 at 11.30 hours** by the openers in the **Office of the Chief Engineer, Drainage, Kataka** in the presence of bidders or their authorized representative, who wish to be present. The bidders and guest users can view the summery of opening of Bids from any system. Contractors are not required to present during the bid opening at the opening location if they so desire. The bids can only be opened by the pre-designated officials only after the opening time mentioned in the bid. In the event of the specified date of bid opening being declared a holiday the bid will be opened at the appointed time and location in the next working day.

4. Eligibility Criteria for Bidders.

To eligible for award of the contract, each bidder shall satisfy the following criteria.

A. Satisfactory completion of similar major items of work:

The bidder should have executed minimum quantities of important & critical items of works as follows :

The minimum quantities of important and critical items of works**:**

1. **Earth work- 82000.00 Cum**
2. **Dredging–35000.00Cum**

(i) This is sum total of similar items in all the works executed in one financial year.

(ii) These items might have been executed in different years separately, in last 5 years including the FY of invitation of tender.

The bidder should submit self-attested copy of certificate of authenticity in the enclosed bidding document from the concerned Executive Engineer/ Superintending Engineer (Divisional Officer) in charge of execution regarding execution of major

CONTRACTOR **EXECUTIVE ENGINEER, DRAINAGE DIVISION, KHORDHA**

items of works during the last **5 years** prior to the financial year of invitation of tender and current financial year. (**From FY 2021-22 to FY 2025-26 and Current Financial Year 2026-27). Year wise break up regarding quantity execution should be furnished.**

B. Bid Capacity:

Applicants will be qualified only if their available bid capacity at the time of bidding is more than the total estimated cost of the work i.e. Rs.1485.86 lakhs. The available bid capacity will be calculated as under.

Assessed Available Bid Capacity = (AxNx2-B), where

A= Maximum value of works executed in any one financial year during the last five years (updated to the **current** price level). The rate of inflation may be taken as 10% per year (Escalation factor) which will take into account the completed as well as work in progress.

B= Value at **current** price level of existing commitments and ongoing works to be completed during the next **18 Months** (period of completion of works for which bids are invited).

Note: Work in hand (existing commitments and ongoing works) should be furnished in enclosed FORM "E" and Form "F". If there is no work in hand, it is to be clearly mentioned as 'NIL' in FORM otherwise the bid will be rejected.

N= Number of years prescribed for completion of the work for which the bids are invited.

Note: In case of a **joint venture** if permissible as per DTCN, the available bid capacity will be applied for each partner to the extent of his proposed participation in the execution of the works. In case the extent of participation is not mentioned, the proposed participation in the execution of the work shall be considered as equal for all the partners.

NOT APPLICABLE

The statement showing the value of existing commitments and ongoing works as well as the stipulated period of completion remaining for each of the works listed should be counter signed by the Engineer-in-Charge not below the rank of an Executive Engineer/Superintending Engineer.

C. Combined Evaluation:

If the bid has been invited in a common tender call notice for a number of works, the order of opening of the bids shall be that in which they appear in the 'Invitation for Bids'. Further, the bidder(s) must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual contracts for value above 7.00 cr.

NOT APPLICABLE

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

D. Sub-Contractor's experience :- Experience Certificate issued by the Engineer-in-Charge (Divisional Officer) to State PSUs and Experience Certificate issued by State PSUs to their Sub-Contractor, shall be taken into consideration, while examining qualifying criteria. The Experience Certificate issued by the state PSUs must carry the counter signature of the concerned Engineer-In-charge not below the rank of Executive Engineer/ Superintending Engineer. In that case, both the original State PSUs and the authorized Sub-Contractor will be treated at par as prime contractor.

5.0 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 3
GENERAL RULES & DIRECTIONS

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

ODISHA PUBLIC WORKS DEPARTMENT

(FORM P-1)

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 bid pasted on a board hung up in the office of the **Executive Engineer, Drainage Division, Khordha.**

   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 bids also the amount of earnest money to be deposited and the amount of the security deposit by the successful bidder 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 bid signed for the purpose of identification by the Sub-divisional Officer/Divisional Officer shall also be open for inspection by the contractor at the office of the Divisional Officer during office hours.
2. In the event of the bid 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 bid 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 bided 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/Divisional Officer before the tender from is issued if a form is issued to an intending tender without having been so filled in and completed, he shall request the office to have this done before he completes and delivers his bid.
5. The amount of earnest money to be deposited will be 1%.
6. Any person who submits a bid shall fill up the usual printed form stating at what rate he willing to undertake each item of the work. Incomplete bid and bid rate he / she willing to undertake each item of the work specified in the said form of invitation to bid 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 for the required earnest money will be liable to rejection. No single bid shall include more than one work, but

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

contractors who wish to bid for two or more work shall submit a separate bid for each bid. Tender shall bear the name of the work to which they refer written outside the envelope, cash deposited for earnest money therein before mentioned shall be made in Government treasuries and the Challan thereof should be enclosed with the bid.

7. The Engineer or his duly authorized assistant will open the bid in the presence of any intending contractors who may be present at the time and will enter the amounts of the several bids in a comparative statement in a suitable form. In the event of bid being the earnest money forwarded therewith shall thereupon be returned to the bidder.
8. The Engineer shall have the right of rejecting all or any of the bids.
9. In the event of a bid being selected for acceptance the Engineer who opened the bids will, if he is competent to accept the bid, inform the bidder of the selected bid who shall there upon sign copies of the specification and other documents mentioned in rules 1 and 4 for the purpose of identification and for his acceptance with the bid. The bidders of the selected bid shall also deposit the required amount of the security money within the prescribed time. If the bidder fails to deposit the required amount of the security money within the prescribed time the Engineer may reject the bid.

   If the Engineer is not competent to accept the bid himself, he will inform the bidder of the bid which he decides to recommend for acceptance, such bid 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 within the prescribed time. The bid with the specification and other documents signed by the bidder will then be forwarded for acceptance to the Engineer who is competent to accept the same. If the said Engineer rejects the bid the security money deposited shall be refunded to the bidder.
10. When a bid is selected for acceptance, the bidder shall deposit the required amount of the security money in cash in any treasury and shall forward the Challan to the Divisional Officer. Government securities may be endorsed to the Divisional Officer in lieu of cash deposit of the required amount of the security money. No tender shall be finally accepted until the required amount of the security money has been deposited.
11. The amount of security money to be deposited by the bidder whose tender is selected for acceptance shall be 2 (two) percent of the tendered value of the work and towards this amount the earnest money already deposited by him shall be credited. At least half of this security inclusive of the earnest money shall be deposited the tenderer within such time as may be notified to him in writing by the officer opening the tender, failing which tender shall be liable to rejection.

    Any balance of the security money outstanding after completion of the contract with the bidder may be made up by deduction of 5% of the amount of each payment to be made to him under clause of the condition of contract for work done under the contract.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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

12. When bid has been selected for acceptance and the required amount of the security money has been deposited the Engineer shall scrutinize pages of the form of item, rate bided 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 bid, sign the acceptance of the tenders or if he is not so competent, shall send the form for signature of the acceptance to the officer competent to accept it.

13.(i) A separate and specific bank account may be opened to keep the security deposits deducted from the running bills in any Nationalized Bank only in the name of the concerned Divisional Officer of the Division, but not in personal name.

(ii) The security amount so deposited should be withdrawn from the same account after completion of the defect liability period of the concerned work and after the work is found defect free in all respects.

14. If the tenderer backs out from the offer before acceptance of the tender by the competent authority, then he/she will be suspended for a period of three years.

15. T.D.S (Tax Deducted at Source) towards GST will be deducted at the rate prescribed in the Odisha Goods & Service Tax Act-2017 or as amended from time to time.

16. Labour Cess @ 1% is to be deducted from the bill as per the notification No 12653 of Govt. of India.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 4

CONDITION OF CONTRACT

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

CONDITION OF CONTRACT

Clause 1- 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 days thereafter 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 security deposit or any part thereof.

Compensation for delay

Clause 2 (a) 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 Executive Engineer shall certify as the date on which the work is finished after necessary rectification of defects as pointed out by the Executive Engineer, or his authorized, agents are fully complied with by the contractor to the Executive Engineer's satisfaction). And further to ensure good progress during execution of the work the contractor shall be bound, in all 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 entire amount

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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

of compensation to be paid under the provision of this clause shall not exceed 10% on estimated cost of the work as shown in the tender.

(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 Executive Engineer on behalf of the Governor of Odisha, shall have power to adopt any of the following courses as he may deem best suited to the interest of Government.

Action when whole security deposit is forfeited

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

In the event of any of the above courses being adopted by the Executive 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 Executive Engineer shall have certified in writing the performance of such work and the value payable in-respect thereof and he shall only be entitled to be paid the value so certified.

Amendment to clause 2(b) of item rate F2 Agreement vide Works Department order no.10639 dt.27.05.2005.

(ii) Security deposit of contractor for each work will be refunded only one year 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 Executive Engineer by clause 3 thereof, shall become exercisable and the same shall not be exercised the non-exercise 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

Contractor remain liable to pay compensation if action not taken under clause-3

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

deposit, and the liability of the contractor for past and future compensation shall remain unaffected in the event of the Executive Engineer putting in force the powers vested in him under the preceding 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 ; at current

market rates to be certified by the Executing Engineer whose certificate thereof shall be final; otherwise the Executive 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 Executive Engineer may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and at his risk 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 conclusive against the contractor.

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 Executive Engineer within 30 days of the date of the hindrance on account of which he desires such extension as aforesaid and the Executive Engineer shall, if in his opinion (which shall be final) reasonable be shown therefore, authorize such extension of time if any, as may in his opinion, be necessary or proper. The Executive Engineer shall at the same time inform the contractor whether he claims compensation for delay.

Extension of time

Clause – 5 On completion of the work, the contractor shall be furnished with a certificate by the Executive 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 Executive Engineer in the site plan) on which

Final Certificate

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

the work shall be executed, all scaffolding surplus materials and rubbish and cleaned off the dirt from all wood work doors, windows, walls, floors or other parts of any building in upon or 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 and conclusive against the contractor the contractor shall fail to comply with the requirements of this clause as removal of scaffolding surplus materials and rubbish and cleaning of dirt on or before the 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 he thinks fit and clean off such darts as aforesaid and the contractor shall forth with pay the amount of 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 – 6 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 is outstanding from

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 for work 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 reconstructed 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 powers of 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 affect 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 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

Store supplied by Government

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, or the 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 whichever

NOT APPLICABLE

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 there after may become due to the contractor; or from his security deposit, or the proceeds of sale thereof".

NOT APPLICABLE

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 4.

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

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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 no rate is specified in this contract then such class of work shall be carried out at the on rates specified on 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 advisable.

Alteration in specification and designs

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

Extension of time in consequence of alterations

Do not invalidate contract

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 Additional Chief 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

Action and compensations payable in case of inferior / unsound work.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 10(Ten) 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 respects of the contractor.

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

Contractor or responsible agents to be present

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 otherwise 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

Notice to be given before work is covered up

Contractor liable for damage done and for imperfections for 12 months after certificate

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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.

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 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 referred to 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 carriage therefore 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 from time to time the work or materials, failing him so doing the same may be provided by the Engineer-in-chargeat the expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from

Contractor to supply plants, ladders, scaffolding etc.

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 any persons 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.

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 twelve year, and shall pay to each labourer ; 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 Executive 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 less than 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 twelve years and to refuse to allow any labourer whom he decides to be below the age of twelve years to be employed by the contractor.

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 ifthe cost of work as shown in the tender exceeds Rs.2,50,000/- The apprentices will be selected by the Chief Engineer. The period of employment will commence within one month from 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, shall not be less than Rs.213.50/- per day in case of graduate Engineers and not less than Rs.150/- per day in case of Diploma holders. The number of apprentices to be employed should be fixed by the Chief Engineer

Not Applicable

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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. Likewise '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 Government or Public Sector undertakings, private companies and firms or ineligible for appointment to Government service. The contractor shall pay the minimum monthly emoluments which shall not be less than the minimum paid to 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 Engineers or 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

Each bill of the Special class or 'A' class contractor shall be accompanied by an employment Roll of the Engineering personnel together with a certificate of the Graduate Engineer or Diploma holder is employed by the contractor to the effect that the work executed as per the bill has been supervised by him.

Not Applicable

Clause – 18 The contract shall not be assigned or sublet without the written approval of the Executive Engineer 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 Executive Engineer may thereupon by notice in writing rescind the contract and the

Work not to be sublet.

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

security deposit of the contractor shall there upon stand forfeited and be absolutely at disposal of Government and the same consequences shall ensure as if the contract had been rescinded under clause 3 hereof and in addition the contractor, shall not be entitled to recover or be paid for any work therefore actually performed under the contract.

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 without 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 disposal of Government and the same consequences shall ensure as if the contract had been rescind under clause 3 hereof and in addition the contractor shall not be entitled to recover or be paid for any works therefore actually performed under the contract.

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 Additional Chief 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 the contractor shall be entitled to payment in respect to 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

Lump sums in estimates

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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.

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 contracted 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 arrangements will be made by the contractor at his own cost for his labour camp.

Clause – 30 The contractor shall bear all taxes, income tax, royalty, fair weather charges and tollage, where ever necessary excluding GST.

Clause –31:- Price Adjustment (Office Memorandum No. 15847 dated 19.11.2019 of Works Department, Govt. of Odisha)

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

31.1: Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in following Paras.

(a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.

(b) The price adjustment shall be determined during each month from the formula given in following Paras.

(c) Following expression and meanings are assigned to the work done during each month.

R = Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month, less the amount of secured advance recovered, if any during the month. It will exclude value for the works executed for the extra items under variations.

31.2: To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provision of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs

The formulas (e) for adjustment of prices are:

31 (a) (i): Adjustment of Other Materials Component

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

V_m= $0.85 \times P_m / 100 \times R \times (M_i - M_o) / M_o$

V_m= Increase or decrease in the cost of work during the month under consideration due to changes in rates for local materials other than cement ,steel , bitumen and POL.

M_o= The all India wholesale price index (all commodities) on 28 days preceding the date of opening of Bids, as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

M_i= The all India wholesale Price index (all commodities) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_m= Percentage of local material component (other than Cement, Steel, Bitumen, and POL) of the work.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

31(a) (ii) Adjustment of Cement Component

Price adjustment for increase or decrease in the cost cement procured by the contractor shall be paid in accordance with the following formula.

V_c= $0.85 \times P_c / 100 \times R \times (C_i - C_o) / C_o$

V_c= Increase or decrease in the cost of work during the month under consideration due to changes in rates of cement.

C_o= The all India wholesale price index for Ordinary Portland Cement (OPC) on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

C_i= The all India wholesale price index for Ordinary Portland Cement (OPC) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India

P_c= Percentage of Cement component of the work.

31(a) (iii) : Adjustment of Steel Component

Price adjustment for increase or decrease in the cost of steel procured by the contractor shall be paid in accordance with the following formula.

V_s= $0.85 \times P_s / 100 \times R \times (S_i - S_o) / S_o$

V_s= Increase or decrease in the cost of work during the month under consideration due to changes in rates for steel.

S_o= The all India wholesale price index for steel (Mild steel long products) on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

S_i= The all India wholesale price index for steel (Mild steel long products) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_s= Percentage of steel component of the work,

Note: For application of this clause, index of (Mild steel long products) has been chosen to represent steel groups.

31(a) (iv) Adjustment of Bitumen Component

Price adjustment for increase or decrease in the cost of bitumen shall be paid in accordance with the following formula.

V_b= $0.85 \times P_b / 100 \times R \times (B_i - B_o) / B_o$

V_b= Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.

B_o= The official retail price of bulk bitumen at the IOC / BPCL depot at nearest centre on the day 28 days prior to the date of opening of Bids

Not Applicable

Not Applicable

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

B_i= The official retail price in bulk bitumen at the IOC / BPCL depot at nearest center for the 15th days of the month under consideration.

P_b= Percentage of bitumen component of the work

`31(a) (v) Adjustment towards differential cost of Pipes

Price adjustment for increase or decrease in the cost of Pipe shall be paid in accordance with the following formula.

V_{pi}= $0.85 \times P_{pi} / 100 \times R \times (Pi1 - P_{i0}) / P_{i0}$

V_{pi}= Differential cost of pipe i.e amount of Increase or decrease in the rupees to be paid or recovered during the month under consideration.

P_{pi}= Percentage of steel component of the work.

Pi1= All India whole sale price index of Pipe for the period under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_{i0}= All India whole sale price index of Pipe on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

31 (b) Adjustment of Labour Component

Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula.

V_L = $0.85 \times P_i /100 \times R (L_i - L_o) / L_o$

V_L= Increase or decrease in the cost of work during the month under consideration due to changes in rates for local labours.

L_o = The minimum wages for unskilled labour as Notified by Government of Odisha as prevailed on the last stipulated date of receipt of tender including extension if any.

L_i = The minimum wages for unskilled labouras Notified by Government of Odisha and as prevailed on the last date of the month previous to the one under consideration .

P_i = Percentage of labour component of the work.

31(c) Adjustment of POL(fuel and lubricant) Component

Price adjustment for increase or decrease in the cost due to POL (fuel and lubricant) shall be paid in accordance with the following formula.

V_f= $0.85 \times P_f/100 \times R (F_i - F_o) / Fo$

V_f= Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricant.

F_o= The official retail price of HighSpeed Diesel (HSD) at the existing consumer pumps of IOC / BPCL / HPCL at nearest center on the day 28 days prior to the date of opening of Bids

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

F_i = The official retail price of HSD at the existing consumer pumps of IOC / BPCL / HPCL at nearest center for the 15 days of the month under consideration.

P_i= Percentage of fuel and lubricants component of the work.

Note: For the application of this clause, the price of High Speed Diesel oil has been chosen to represent fuel and lubricants group.

31.(d) <u>Adjustment for Plant and Machinery Spares Component</u>

Price adjustment for increase or decrease in the cost of Plant and Machinery Spares procured by the contractor shall be paid in accordance with the following formula.

V_p= $0.85 \times P_p/100 \times R (P_i - P_o) / Po$

V_p= Increase or decrease in the cost of work during the month under consideration due to changes in rates for Plant and Machinery Spares.

P_o = The all India wholesale price index for manufacture of machinery for mining, quarrying and construction on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

Pi_i= The all India wholesale Price index for manufacture of machinery for mining, quarrying and construction for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_p= Percentage of Plant and Machinery Spares component of the work.

Note: For the application of this clause, the index of manufacturing of machinery for mining, quarrying and construction has been chosen to represent the Plant and Machinery Spares group.

Regarding wholesale price index (WPI) appropriate commodity for payment of price adjustment due to change of base year of WPI from 1993-94 to 2004-05 & 2011-12, it is observed that, the commodity 'Bars and Rod", "Cement", "Heavy machinery and parts" included in the list of WPI 1993-94 series are not mentioned as such in the WPI 2004-05 & 2011-12 series. Therefore, the following items in the WPI 2004-05 & 2011-12 series shall be considered corresponding to the items in WPI 1993-94 series.

Sl No	**Items in WPI 1993-94 series.**	**Items in WPI 2004-05 series.**	**Items in WPI 2011-12 series.**
1	Cement	Grey Cement	Ordinary Port Land Cement
2	Bars and rods	Rebars	Mild steel long products
3	Heavy Machinery and parts	Construction Machinery	Manufacture of machinery for mining, quarrying and construction.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

31 (e): APPLICATION OF ESCALATION CLAUSE

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 documents 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 POL give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition along with information relating to there to which he may be in a position to supply.

PERCENTAGE TABLE

Sl. No.	Category of works		% Component(Cost wise)		
			Labour (P_l)	POL (P_f)	Steel(Ps)+Cement(Pc)+ Bitumen(Pb)+ Pipes(Ppi)+ Plant & Machinery Spare &component(Pp) + Other materials.*
1	R & B works (% of component)	Road works	5	5	90
		Bridge works	5	5	90
		Building works	5	5	90
2	Irrigation works (% of component)	Structural work	5	5	90
		Earth, Canal & Embankment work	5	5	90
3	P.H.Work	Structural work	5	5	90
		Pipeline work	5	5	Pipe -70% *Machinery+ Other material-20%
		Sewer Line	5	5	Pipe -70% *Machinery + Other material-20%

***** Note-Further break up may be worked out considering the consumption of Cement, Steel, Bitumen Pipe and Plant and Machinery Spare component in the concerned works and shall be provided in the bid document in shape of “Schedule of Adjustment Data” as an “Appendix to Bid”.(enclosed here with).

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

Appendix to Bid
Schedule of Adjustment Data

[For works, adjustment factor for Labour and POL shall be considered @5% each. Steel, Cement, Pipes, other Materials and Machinery shall contribute to 90% of Price Adjustment and shall be calculated for each work separately during preparation of estimate shall be approved by the authority during technical sanction as a “Schedule of Adjustment Data” and shall form part of the Bid Document]

Cl No 31 of F2 / P1 Contracts. Sl No	Index Description	Source of Index	Base Value*	Base Date*	Weightage of Item**
31(a)(i)	Other Materials	All India whole sale price index(all commodities) as published by the Economic Advisor, to the Govt. of India, Ministry of Commerce and Industry,			61.90%
31(a)(ii)	Cement	Whole sale price index for Cement (Ordinary Portland Cement) as published by the office of the Economic Advisor, to the Govt. of India, Ministry of Commerce and Industry,			1.10%
31(a)(iii)	Steel	Whole sale price index for steel (Mild steel long products) as published by the office of the Economic Advisor, to the Govt. of India, Ministry of Commerce and Industry,			16.60%
31(a)(iv)	Bitumen (VG-30)	The official retail price in bulk bitumen at the nearest IOC / HPCL depot			
31(a)(v)	Pipes	Whole sale price index for the type of Pipe under consideration, as published by the office of the Economic Advisor, to the Govt. of India, Ministry of Commerce and Industry,			

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

31(b)	Labour	Minimum wages notified by the Labour and Employee's State Insurance Department of Government of Odisha,India			5%
31(c)	POL	Official retail price of HSD at nearest IOC/ HPCL/ BPCL Consumer pump depot.			5%
31(d)	Plant and Machinery	Whole sale price index for Manufacture of Machinery for Mining, Quarrying and Construction as published by the office of the Economic Advisor, to the Govt. of India, Ministry of Commerce and Industry,			10.40 %
			Total		100%

* Values to be filled up at the time of drawl of contract.

** Values to be filled up in the Bid document.

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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 withstanding 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 Divisional Officer or Sub-Divisional Officer concerned shall have the right to deduct, from the money due to contractor, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of workers nonpayment 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

(f) regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractor.

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

(h) 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. Divisional Officer or Sub-Divisional Officer concerned shall 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.

(i) 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.

(j) The contractor shall submit by the 4th&19th 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.472.00** for each default of materially incorrect statement. The amount levied as fine as per decision of the Divisional Officer shall be final in deducting from any bill due to contractor.

(k) 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.

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

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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

2. Pay (i) **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.472.00** a day whichever 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 preceding the date on which she proceeds on leave.

Clause - 34 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 with stipulation that the rates will not be less than the rates provided in the sanctioned estimate of the work. The rates for Royality, Environment Management Fund(EMF),District Mineral Foundation(DMF), and any other applicable statutory charges shall be adopted as per the provisions of the Odisha Minor Mineral Concession (OMMC) Rules, as amended from time to time.

Clause - 35 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 alongwith the letter of acceptance, the successful bidder will sign

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 P-1.

2. TIME CONTROL

2.1 Progress of work and Re-scheduling programme

2.1.1. The Divisional Officer / 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 and commencement 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, 3/4th 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 contract data.

2.2.3. In case 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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 trade men engaged by Engineer-in-Chief, in executing work not forming part of the contract.

v. In case 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 Additional Chief 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 Clauses 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 contract data, or the rescheduled milestone (s) in items of Clause 2.5. 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), the 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.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 5

SPECIAL CONDITION OF CONTRACT

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SPECIAL CONDITIONS

1) PERIOD OF COMPLETION

The period of completion shall be **18 (Eighteen) calendar months** as has been specified in Detail Tender Call Notice from the date of issue of notice to proceed with the work.

2) LANGUAGE OF THE CONTRACT

All written material and correspondence in connection with the contract shall be in English.

3) REFERENCE MARKS AND BENCH MARKS

The basic centerlines, reference points and benchmarks will be fixed by the Engineer-in-charge. The contractor shall establish at his cost, at suitable points, additional reference lines and bench marks as may be necessary. The contractor shall remain responsible for the sufficiency and accuracy of all his benchmark and reference lines. He shall take precaution to see that the lines, points bench marks by the Department are not disturbed by his work and shall make good such damage.

4) Defects Liability - The contractor shall be responsible to make good at his own expense, any defect which may develop or may be noticed before the expiry of twelve months from the certified date of completion and which is attributable to the contractor. All notices of such defect shall be given to the contractor promptly. In case the contractor fails to make good the defects, the **Executive Engineer, Drainage Division, Khordha** may employ other persons to make good such defect, and all expenses consequent thereof and incidental thereto shall be borne by the contractor.

In the event Government takes over portions of works, as they are completed, the liability of the contractor under this clause for those portions shall extend to a period of thirty-six months from the actual date on which portions of the works are taken over. There will be no defect liability for dredging activity. However, the agency has to follow the basic principles of dredging to minimize siltation of dredged area,

5) Setting out works - The contractor shall be responsible for the correct setting out of all works at his cost. The contractor shall execute the work true to alignments grade and levels as shown in the drawings and directed by Engineer-in-charge of the work and shall check these at frequent intervals. The contractor shall provide all facilities like labour and instrument and shall co-operate with the Engineer-in-charge of work to check all alignments, grades, levels and dimension. Such checking shall not absolve the contractor of his own responsibility of maintaining the accuracy of the work.

6) ACCIDENTS.

It shall be the contractor's responsibility to protect against accidents on the works. He shall indemnify the Government against any claims for damage or for injury to person or property resulting from and in the course of work and also under the provision of the

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

workmen's compensation Act. On the occurrence of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the contractor shall within twenty-four hours of such accident report in writing to the **Executive Engineer, Drainage Division, Khordha**, the fact stating clearly and in sufficient details the circumstances of such accidents on the subsequent action. All other accidents on the works involving injuries to persons or damage to property other than that of the contractor shall be promptly reported to **Executive Engineer, Drainage Division, Khordha** stating clearly and in sufficient details the facts and circumstances of the accidents and action taken. In all cases the contractor shall indemnify the Government against all loss or damage resulting in directly or indirectly from the contractor's failure to report in the manner aforesaid. This includes penalties or fines if any payable by the government as a consequence of failure to give notice under workman's compensation act or failure to confirm to the provisions of the said act in regard to such accident. In the event of an accident in respect of which compensation may become payable under the workman's compensation act - III of 1928 including all modifications thereof whether such compensation may become payable by the contractor or by the government as Principal Employer, the **Executive Engineer, Drainage Division, Khordha** may retain out of money due and payable to the contractor such sum or sums of money as may be in opinion of the **Executive Engineer, Drainage Division, Khordha** be sufficient to meet such liability. On receipt of award from the Labour Commissioner in regard to quantum of compensation, the difference in account will be reimbursed or recovered from the contractor.

7) ENGINEER-IN-CHARGE'S DECISION:

It shall be accepted as an inseparable part of the contract that in matters regarding materials, workmanship, removal of improper work, interpretation of the contract drawing and contract specification, mode of procedure and the carrying out of the work, the decision of the **Executive Engineer, Drainage Division, Khordha** which shall be given in writing, shall be final and binding on the contractor. The Engineer-in-Charge's final authority applies to technical consideration and does not include decisions regarding sums due to or from the contractor for extension of time.

8) FORCE MAJEURE:

Neither party shall be liable to other for any loss or damages occurred by or arising out of acts of God. Such as unprecedented flood, volcanic eruption, earthquake or other convulsion of nature and other acts such as but restricted to general strikes, invasion, the act of foreign countries hostilities or war like operations before or after declaration of war, rebellion, military or usurped power which prevent performance of the contract and which could not have been foreseen or avoided by prudent person.

9) SETTLEMENT OF DISPUTE:

If the contractor considers any work demanded of him to be outside the requirements

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

of the contract or considers any drawing record or ruling of the Engineer-in-charge, on any matter in connection with or arising out of the contract or carrying out of work to be unacceptable, he shall promptly ask the Engineer-in-charge in writing for written instruction or decision. There upon the Engineer-in-charge shall give his written instructions or decision within a period of thirty days of such request. Upon receipt of the written instruction or decision, the Contractor shall promptly proceed without delays to comply with such instruction or decision. If the Engineer-in-charge fails to give his instructions or decision in writing within a period of thirty days after being requested or if the contractor is dissatisfied with the instruction or decision of the Engineer-in-charge, the contractor may within thirty days after receiving instructions or decision of the Engineer-in-charge will approach to the higher authority who shall afford an opportunity to the contractor to be heard and to offer evidence in support of his appeal. The Authority shall give his decision within a period of thirty days after the contractor has given the said evidence in support of his appeal, which shall be binding upon the contractor.

10) CONSTRUCTION PROGRAME

i) The contractor shall have to submit the construction programme i.e. the plan and programme of execution for completion of the work in time, to the Engineer-in-Charge through the concerned sub-divisional officer to carry out the execution accordingly, subject to approval of the engineer-in-charge.

ii) If the revised construction programme is required on account of non-completion of work for which Extension of Time is required or for disruption of the execution in the stipulated period, the contractor shall have to submit the same to the Engineer-in-charge along with the Extension of Time application, if extension of time is prayed for or immediately after disruption of the execution mentioning the clear reasons, for revision of work programme. The decision of the Engineer-in-charge is final and binding on the contractor.

11) With reference to Clause-10 of the condition of contract authorized items of work not covered by the tender schedule will be paid at the current schedule of rates. In order to execute the nonscheduled of extra item of work, if the Engineer-in-charge thinks it proper that the additional work which is neither included in Schedule of Rate nor in contract is to be executed by the same Agency and the Rate offered by the contractor is not acceptable to Engineer-in-charge the rate of the said extra item of work shall be derived on the basis of actual field observation in consultation with the contractor with provision of contractor's profit @ 15 % as envisaged in Schedule of Rate of Water Resources Department, which shall be binding on both the parties. The programme of observation shall be mutually chalked out in a manner not to hamper the progress of work.

12. The contractor shall make at his own cost housing accommodation, drinking water and provide medical aid to the labourers engaged on the work.

13. The right is reserved to increase or decrease in the quantities or items of works

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

mentioned in the schedule attached to the tender notice as may be considered necessary for satisfactory completion of the contract work and such increase or decrease shall not be entitled for any compensation on this account except extension of time when considered necessary.

14. The work will be executed as per detailed standard specification of the Government of Orissa, Measurement of Moorum, gravel and stone product such as metals stones, boulders, rough stones and soiling stones, chips will be taken as per the above specification and payment will be made for the quantity arrived at after deduction of voids.

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

16. The contractor should keep himself in constant touch with the Engineer-in-charge for smooth execution of work and arrange for adequate labour and machineries depending on the workload and working place available. No claim for detention of labour or machineries on any account will be entertained.

17. The contractor will provide labour for giving alignments and profiles. All the materials necessary for such work will be supplied by the contractor and the profile is to be maintained at his own cost till the work is completed.

18. Suitable earth required for the work shall be arranged by the Contractor at his own cost and responsibility without any extra claim.

19. The rate for each work must include conveyance by all means, manual mechanical or both.

20. Approach road/diversion road to site of work if necessary is to be constructed and maintained and dismantled if required after completion of the work by the contractor at his own cost.

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

22. **Measurement of each work shall be taken as follows:**

Before commencement of work initial levels and to determine the final measurement of the work, final levels of the embankment or drain or ground or structural work as the case may be, shall be taken in presence of the contractor. The contractor will satisfy himself about the correctness of the initial and final levels entered in the level book issued by the Engineer-in-charge and in token of the acceptance of the said levels the contractor shall have to sign in each page of level book in which the said levels are recorded. Basing on these levels, the gross quantity of work executed by the contractor shall be arrived at. After completion of the work the contractor shall be given a written notice to attend the final measurement. On receipt of the notice, the contractor must have to attend the final measurement failing which the measurement ex-parte shall be taken by the Engineer-in-charge, which shall be binding

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

on the contractor. In case of the abandonment of work, if it is decided by the Engineer-in charge that final measurements of executed work shall be taken, the same procedure shall be followed as in case of final measurement on completion of work. It is the responsibility of the contractor to make the site free from all problems to take measurement by the **Divisional Officer** or his authorized officer. If in the opinion of the Engineer-in-Charge, the site is not free from problem for measurement and, and the contractor does not take any corrective measures to get rid of same, the Engineer-in-Charge shall make the site free from problem to take the measurement at the cost crediting to the contractor and certificate by the Engineer-in-Charge for the purpose shall be conclusive and binding.

23. The Engineer-in-charge shall decide the contractual matters in accordance with codes, rules and acts in vogue which shall be binding on both parties.
24. The work shall be executed in accordance with the technical specification which from a part of the contract.
25. All the measurements for earth work will be taken by section measurement.
26. The contractor should engage local labour on priority basis during execution of work.
27. For earth work in embankment there will be minimum distance of 15 m between toe of the embankment and borrow pit.
28. For earth work in cutting reaches, the spoils should be deposited as directed by the Engineer-in-charge. 20% of the work value will be with hold for run disposal of excavated earth in proper shape.
29. The tenderer should inspect the site of work before tendering of the work and incase of any clarification should consult with the Engineer-in-charge.
30. Any royalty or any other taxes if any for executing the work will be borne by the contractor.
31. There will not be any compensation or extension of time granted for reasons of inadequate cash flow. No compensation/claim for delay in sanction of deviation / extra items and payment thereof will be admissible to contractor.
32. The contractor shall sign as a token of final acceptance on the plans, sections for the work prior to taking up the work for execution.
33. Water required for work will be arranged by the contractor at his own cost and carriage cost of sinking of well or any other arrangement from any source whether artificial or natural shall not be paid. This is treated as inclusive in his item rates.
34. Under no circumstances, interest chargeable for the dues or any additional dues, (if any) payable for the work shall be entertained.
35. It shall be distinctly understood that it is entirely the responsibility of the contractor to make such arrangements as 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 damages either during

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

working season or during the rainy season. The department accepts no liability, whatsoever for any damage or loss of men, materials, machinery and work or any hindrance caused to the progress of work.

36. After completion of the work the contractor shall arrange at his own cost all requisite equipments and labour for testing the work and bear the entire cost of such test.
37. All correspondence with the tenderer will be made through post in the address given in the tender. The tenderer must mention in the tender, his correct postal address where letters can be delivered to him. The department will not held responsible for non-receipt of any letter by the tenderer either for wrong address given by him or for his absence from the given address. The contractor must intimate any change in address for correspondence.
38. If there will be any delay in land acquisition no compensation or claim on that account will be entertained, full extension of time will be granted if considered reasonable.
39. Construction of coffer dams for islands or the works of open excavation or dressing required for construction of structure and approach channel should be included in the rates.
40. The contractor should take all precautions to protect the structures from flood damages at his own cost during the period of executions. Damages if any caused by the probable flood during monsoon till completion and handing over of entire work will be made by the contractor at his own cost.
41. During & after execution of the work the contractor shall arrange at his own cost all requisite equipments and labour for testing the work and bear the entire cost of test.
42. The authority reserves the right to revalue the contract with due notice.
43. In case the contractor fails to commence the work specified in the tender documents on 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 form the date of handing over of the site, whichever is later, the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit whole of the earnest money absolutely.
44. Authority reserves right to revoke the contract with due notice.
45. The works may need to be executed during night without non-interruption, when required.
46. The excavated materials which are not useful in construction works to be disposed off in low laying area as indicated by Engineer-in-charge.
47. The stockyard of machineries and installation of batching plant, concrete mixer may vary place to place as per site condition which needs to be take care by the bidder at **his own cost.**
48. Keeping all these conditions, rates should be quoted by the Contractor.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 6

TECHNICAL SPECIFICATION

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

GENERAL INFORMATION

1.1 Description of work to be executed

In order to overcome the drainage problem, the following work is proposed **"**Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre**".**

1.2 Location of Work site: The water bodies are located inside Bharatpur Reserve forest & Regional Plant Resource Center situated in the prime location of Bhubaneswar city,on having 20^0-18'-89"N latitude / 85^0-47'-28.22" E longitude and 20^0-18'-33.23"N latitude / 85^0-47'-37.17"E longitude, 20^0-18'-2.96"N latitude / 85^0-47'-25.28" E longitude and -$20^0$17'-50.58.95"N latitude /85^0-48'-11.66" E longitude ,respectively.

1.3 Transport Communication Facilities

The contractor has to make arrangement to transport all his construction equipment's, construction Materials and labour to work site at his own cost.

1.4 Climate

The climate of the project area is tropical with three permanent seasons i.e. summer, rain & winter. Most of the rainfall is received from 15th June to 30th October.

1.5 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.

1.6 Availability of petrol, Diesel and other lubricants:

The petrol pumps for procurement of petrol, diesel and other lubricants are available. 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.

1.7 Electricity Supply:

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

1.8 Housing Facilities:

Private house is available in the vicinity of the work site. The Contractor shall make his own arrangement for housing the labourers, workers and staff at the work site.

1.9 Medical Aid :

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

2.0 Source of fund- Deposit Head .

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-1

6.1 GENERAL SPECIFICATION

The terms the India Standard Specification herein after referred to as BIS as used therein means the relevant Bureau of Indian Standard codes with all amendments published up to the date of Submission of bids.

In addition to the relevant BIS code, the specifications prescribed and guidelines issued by Central water Commission Standard Specifications and MORTH Section shall also be followed where BIS specifications are not available.

Notwithstanding anything mentioned here & above so far as quality of materials& its use provision in relevant BIS / ISI Specification / code/ guideline will be used.

LIST OF INDIAN STANDARDS

Sl. No.	Short Title	B.I.S Number
1.(I)	**CEMENT**	
1.	Specification to ordinary and Low heat Portland cement.	269-1976
2.	Specification for Portland Pozzolana Cement.	1489-1976 (Third revision)
3.	Portland Slag Cement.	455-1976
(II)	**AGGREGATES**	
1.	Specification for coarse and fine Aggregates from natural source for concrete	383-2016
2.	Specification for sand for masonry mortars	2116-1980
3.	Method of Tests for aggregates for concrete.	2386-1963 (Part I to Part VIII)
4.	Methods for sampling of aggregates for concrete.	2430 -1969
5.	Method of test for determining aggregates impact value of soft coarse aggregates.	5640-1970
(III)	**STEEL**	
1.	Code of practice for bending and fixing of bars.	2502-1963

2.	Deformed bars for concrete reinforcement hot rolled mild steel and medium tensile steel (Revised).	1139-1966
3.	Recommendations for detailing of reinforcement in Reinforced concreted works.	5525-1969
(IV)	**CONCRETE**	
1.	Code of practice for plain and reinforced concrete.	456-2000
(V)	**EARTH WORK**	
1.	Safety code for piling and other deep foundations.	5121-1969
2.	Safety code for excavation works.	3764-1966
3.	Code of practice for earth work on drains.	4701-1982
4.	Safety code for working with construction machinery.	7293-1974
(VI)	**OTHER SUBJECTS**	
1.	Safety code for scaffolds and ladders part I scaffolds.	3696-1987
2.	Safety code for scaffolds and ladders Part 2 ladders.	3696-1991 (Part-II)
3.	Recommendations on stacking and storage of construction materials at site.	4082-2017
4.	Concrete pipes (with and without reinforcement) (2nd revision).	IS: 458-1971
5.	Code of practice for laying of concrete pipes.	IS: 783-1959

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-2

2.1 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 changes 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 Divisional Officer prepare revised additional drawings and specifications and may be required to suit the stage of the work.

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

2.3 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.

2.3.1 Formation and maintenance of haul roads including river and drainage crossings within the work site and 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.

2.3.2 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 contractor's cost.

2.3.3 Scaffolding and gangways as and when required for the work will be done by

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

the contractor at his own cost. No additional payment in this regard, will be entertained.

2.3.4 The rate includes all leads, lifts & delifts.

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

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

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

2.5 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.

2.6 Quality Control:

2.6.1 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, Bhubaneswar**.

2.6.2 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.

2.6.3 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/ Asst. Executive Engineer of the Department as well as staff of A.R.O./ Superintending Engineer of Quality Control Division, Bhubaneswar. 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.

2.6.4 On receipt of notice from the Engineer-in-charge and on observation of Divisional Officer, Quality Control Division, Bhubaneswar, 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.

2.7 A quarry chart indicating possible source of materials may be seen in the office of the **Executive Engineer, Drainage Division, Khordha.** The contractor must however satisfy himself that materials as per required specifications and quantity are available in those quarries. No extra payment will be made due to non-availability of materials as per required specification and quantity in the quarries shown in the departmental quarry chart. The quarry chart is only an indication of source of material and the department does not accept the responsibility if the materials are not available in full quantity and quality.

2.8 No claim for cost and carriages of water whatsoever will be entertained.

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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-3

3.1 SETTING OUT OF WORK

3.1.1 Temporary bench marks shall be fixed at suitable location connecting permanent bench marks fixed by Survey of India. 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, with the approval of the Engineer-in-charge. The bench marks shall preferably marked over existing permanent structures. Wherever permanent structure not available at site. The bench marks shall be marked over concrete pillar 30cm L X 30 cm B X 75 cm D which shall be embedded 55 cm in to firm ground and projecting 20 cm 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 the bench mark shall be continuously carried and painted in pillar.

3.1.2 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 and the reference line for all alignments for demarcation purpose shall be laid by dug-belling on the ground. The reference line shall comprise the base line properly bud belled on the ground with the numbered concrete/masonry RD pillar suitably spaced.

3.1.3 Center line of the drain shall be marked by fixing bamboo pillars/wooden peg/ stone at suitable intervals. Profiles of the drain in filling and in moderate cutting shall be marked at suitable intervals in curves as directed by Engineer-in-charge. A reference line shall also be marked on ground away from the outer edges of cutting and filling with pillars at suitable intervals for future reference.

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

3.1.4 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.

3.1.5 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 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 Drain. The control structure locations of off-taking drains 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.

3.1.6 To ensure accuracy in execution of cutting, the drain embankment, spoil banks and the structures, their layout shall be given in an appropriate manner with pegs and pillars suitably placed in relation to outer dimensions of these elements.

3.1.7 All materials and labour for setting out works including construction of reference bench marks, reference lines, check profiles and surveys as may be required at the various states of the construction, shall be supplied by the contractor at his own cost.

3.2 CLEARING AND GRUBBING

3.2.1 CLEARING AND LEVELING SITE

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 form 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/drains.

3.2.2 **GRUBBING**.

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 of the 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 leveled off, as directed.

3.2.3 **DISPOSAL OF CLEARED AND GRUBBED MATERIAL**

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.

3.2.4 **PAYMENT**

For the clearance of light jungles, heavy jungle with or without uprooting etc., payment will be made as provided for in the bill of quantities. Separate payment will not be made for clearing of site and grubbing including disposal of the cleared and grubbed materials required under the above paras 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 meters will be made, and the rate quoted for excavation will be considered including this item. However, payment will made for the removal of surface boulders of sizes greater than 0.5 cubic meter. Either loose or partly embedded in the ground, at the rate quoted in bill of quantities for the actual quantity so removed based on stack measurement applicable for the relevant strata classification after deducting 40% towards voids. Benching will be paid as separate item, per 1(one) running mtr. of bench at the rate provided for in the bid documents.

3.3 USE OF WATER

The Contractor shall procure and supply water for 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.

3.4 DAMAGES BY MONSOON OR FLOOD / CYCLONE

Damages due to rain or flood have to be made good by the Contractor till the

work is handed over to the department. The responsibility for making good 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.

3.5 REMOVAL OF SILT AND WATER:

Payment for removal of silt will be made as provided in bill of quantities. Accumulated silt and water in the drain and structures for the works partly done by the contractor in current or previous seasons should be removed and no extra payment will be made, for such removal of silt and water. This unit rate of excavation is deemed to include cost of removal of such silt and water.

3.6 PROCEDURES FOR MEASUREMENT:

Before commencement of work, initial levels to indicate existing ground levels shall be taken at 30M intervals longitudinally along the alignment of the drain. The level points transversely along the cross sections shall be maximum at 5 M. intervals in flat ground and 1.5 to 2.0M in undulating terrain. The cross sections shall be extended beyond the limit of work to a suitable distance and minimum 5 mtr beyond the toe lines of slopes on both the sides. The interval stipulated shall be made closer depending on the topography or any stipulation made by the Engineer-in-charge. All initial levels shall be recorded in ink in authenticated 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 Executive Engineers shall exercise checks strictly in accordance with the codal provisions. Actual construction works 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 mtr.

3.7 All lead in manual means will mean lead up to 225 m. All lift will mean lift up to 7.50M.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-4

4.1 EARTH WORK – GENERAL

All works of the contract shall be executed as per the specific and relevant clause/clauses of relevant I.S. code unless otherwise specified. Materials used should confirm to the desired standards prescribed in the relevant codes. Wherever Para of I.S. code is cited in specification, it goes without saying that the latest revision of the specification subsequently, shall apply. For purpose of relevancy or otherwise of any provision of the I.S. code referred to, the decision of Engineer-in-Charge shall be final and binding.

4.2 EXCAVATION OF DRAIN AND FOR STRUCTURES

4.2.1 The excavation shall be carried out to the lines and grades as shown on the drawings or as provided in these specifications, and all materials required to be excavated will be paid for at the applicable rates in the schedule for excavation. No additional allowance above the rates in the schedule will be paid. The classification of excavation as decided by the Engineer-in-charge is binding on the contractor. In case of dispute, the decision of superintended Engineer shall be final. Merely the use of explosive in excavation will not be considered in areas on the higher classification unless blasting is clearly necessary in the opinion of the Engineer in-charge.

4.2.2 The excavation may be carried out manually or mechanically and as per specification, drawing and direction of Engineer-in- Charge

4.2.3 The excavation in all kinds of soil and D.I. Rock shall be done according to the dimensions and grades shown on the drawing.

4.2.4 Blasting shall be done in such a manner as not to cause over break which in the opinion of the Engineer-in-Charge is excessive. Special care shall be taken to prevent over break or loosening of material on bottom and side slopes against which concrete lining is to be placed. Final cutting in hard rock for 45cm shall be carried out by controlled blasting or chiseling or with the help of pneumatic pavement breakers. If excavation is required to be done within 30m from the existing structure, the same shall be carried out by chiseling. The method of drilling and blasting to be resorted to for hard rock excavation shall be approved from the Engineer-in-Charge.

4.2.5. The excavation shall be allowed to progress from the valley ends of the reach towards the ridge in conformity with the layout given. All useful earth from excavation shall be used in for filling the banking section, with varying leads and lifts either manually of mechanically. Excavated materials which is not useful for banking or which is in excess after meeting the banking requirement of the reach shall be disposed either by head load or by mechanical means or by both in spoil bank or at

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

any specified place with all lifts and with varying leads.

4.2.6 The contractor shall not be entitled to any additional rate above the rates quoted in the schedule on account of the requirement for allowing additional time for drying, stock piling and rehandling the excavated material which have deposited temporarily and stockpiled.

4.2.7 Earthwork beyond the required design will not be paid for. The measurement of earth should be taken after one complete rainy season or 12.5% voids will be taken foe measurement.

4.2.8 Suitable earth available from cutting will economically be utilized in filling zone. No separate payment shall be allowed.

4.2.9 Earth filling by mechanical means will start only after completion of earth work by head load duly permitted by Engineer-in-charge.

4.2.10 Unless mechanical transportation is specified, surplus earth will be deposited in the spoil bank manually with initial lead & lift after meeting the requirement of canal/drain.

4.3 EXCAVATION OF SOIL AND DISINTEGRATED (D.I) ROCK

Excavation of soil shall comprise of all kinds of soil such as vegetable or organic soil, turf, sand, silt, loam, clay, mud, peat, black cotton soil, loose or compact moorum, soft/stiff/heavy /hard shale, stony earth mixed with gravel having 300mm.maximum diameter in one direction. Excavation of D.I. shall comprise of soling of roads/paths, hard core, macadam surface lean concrete stone masonry brick works soft conglomerate lime stone, sand stone hand conglomerated and all types of D.I. rock, which-does not require blasting and can be quarried or split with pick axe and crow bars. If, however, the contractor resorts to blasting in such strata and D.I. rocks for his convenience, no extra payment shall be made and the material shall not be classified in higher grade. Excavation for canal & side slopes are to be made as per the approved drawings, specification and provision of I.S.Code.

4.4 EXCAVATION OF HARD ROCK

This shall include all solid rock in place of such hardness and textures that it cannot be removed by pickaxe and crowbar or any other method until loosened by drilling. blasting and wedging. All boulders or detached pieces of solid rocks having volume greater than 3cum.can be classified as hard rock when removed by blasting etc. Blasting shall be restored only after it has been certified by the Engineer-in-charge that blasting is necessary. Rock excavation shall be done as per relevant I.S. codes & following relevant safety provisions.

The excavated rock and debris so obtained shall be carried and dumped/stacked separately with varying lead at places indicated by the Engineer-in-charge. The volume shall be calculated after deduction of suitable void percentages and compared and co-related with the premeasured volume.

The excavated materials shall be the property of the Department. The same shall be issued to the Contractor for the work such as pitching, filter, rock toe, masonry works etc. under this contract, if required. at the issue rate. The issue rate fixed by the department for time to time shall be applicable and binding on the contractor.

Payment for sheet hard rock shall be made as per level section (pre & finished) taken at 3m. apart with transverse levels at every 1m. apart. A closer interval for leveling may be adopted if considered necessary in the opinion of the Engineer-in-charge. Boulders having volume more that $3M^3$ shall be premeasured. However, the excavated hard rock as measured by above method and as calculated by stack measurement (deduction voids) shall be co-related and variation worked out. The stack measurement of hard rock shall not ordinarily be less than 70% which shall be ascertained by the Engineer-in-charge and a certificate there of shall be recorded in the measurement book. If a higher variation is found after being got verified by the Engineer-in-charge, a report shall be forwarded to the Additional Chief Engineer for approval.

4.5 OVER EXCAVATION:

The canal/drain shall be excavated to designed section in all kinds of soil and D.I. rock. No over excavation will be allowed. However, in canal/drain sections taken in Hard rock formation over excavation to the extent of 10cms depth on an average will be allowed and paid for in respective item. In case of over excavation due to poor geological formation certified by the Additional Chief Engineer & approved by the Chief Engineer payments would be made for removal of such quantity only. In the canal/drain section where expansive type of soil such as Ch type of soil is encountered and over which concrete lining cannot be directly laid, the canal prism shall be over excavated to the extent as directed by the Engineer-in-charge and such over excavated section shall be filled with suitable cohesive non-swelling (CNS) type of soil to be placed in uniformly compacted layers as directed by the Engineer-in-charge. The over excavation made in such strata, filling by suitable soil, watering and compacting, will be paid under respective items at the quoted rate.

4.6 DEWATERING TRENCHES

Subsoil water met within canal/drain excavation shall be diverted to nearby drain/nalla by cutting an open channel within the canal/drain section to be excavated. When the drain/nalla bed is higher than the subsoil water level met with pumping shall be resorted to for dewatering below the drain /nalla bed level. No extra payment will be made for such diversion. In case where topography of the area is such that surface water is not possible to be drained off by excavating the channel, pumping shall be resorted to till completion of work.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

4.7 MEASUREMENT AND PAYMENT

The payment shall be made on volumetric basic for the quantities excavated to the required extent. The cross sections shall be taken initially before commencement of work as stipulated in earlier Para. On completion of execution, final cross section shall be taken at the same points longitudinally and transversely. These cross sections shall be marked on the initial cross sections and the quantities between initial and final cross sections shall be worked out and paid. In case of canal/drain excavation in hard rock, cross sections shall be taken at 3M interval longitudinally with transverse levels at I M or closer intervals, as decided by the Engineer-in charge for initial and final sections. Isolated boulders having volume more than 3 cum. and not covered in section measurement shall be premeasured.

4.8 EXCAVATION FOR STRUCTURES

4.8.1 Excavation for the foundation of structures shall be to the elevation shown on the drawings or as directed by the Engineer –in charge. In so far as practicable the useful materials removed in excavation for structures shall be used for back fill and embankment.

4.8.2 FOUNDATIONS FOR STRUCTURES

All trenches in soil other than rock or hard compact soil more than 1.5 m depth in which men enter shall be securely shored shuttered and timbered for safety and no separate will be allowed. All loose stones, projecting clumps of earth, pockets of materials which might come down on the workers in the trenches or any condition which is hazard, shall be either removed or the excavated sides adequately braced and the trench suitably guarded. On stiff slopes, workmen shall not be permitted to work one above the other.

The contractor shall prepare the foundations of structure site by method, which will provide firm foundation for the structures. The bottom and the 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 moisten and tamped with suitable tools to form firm foundation upon or against which the structures is to be placed. The contractor shall prepare the foundation of the structures as shown on the respective drawings. The horizontal foundation materials beneath the required excavation shall be moistened if required and compacted in place.

If the Engineer-in-charge considers it's 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-in-charge and the payment will be as per the general contract document in respect of extra items. Densities of the compacted foundation materials and the testing there of shall be in accordance with relevant IS specification. When unsuitable materials are

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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. The excavation of soil, the over excavation shall be filled in by selected bedding materials and compacted. In excavation of rock, it shall be filled by cement concrete M-7.5. Payment will be made as per unit rate as provided in the bill of quantities. Should remain of old building be met with, the materials shall be removed with wedges and levers. Blasting shall not be allowed, with the permission in writing of the Engineer-in-charge. If bad ground of loose soil is met with the contractor shall responsible for reporting the fact to the Engineer-in-charge who shall issue such orders as may be necessary. For extra excavation, concrete and masonry arising from bad ground, the contractors 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 the requirements for filling in drain embankments etc. shall be spared, as instructed by the Engineer-in-charge at the contractor's expenses.

4.8.3 OVER EXCAVATION:

If at any point in common excavation the foundation material 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 compacted in place or where directed, 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 reason except as directed by the Engineer-in-charge shall be at the expense of the contractor. Filling for such excess excavation of over excavation shall be at the expense of the contractor.

4.8.4 DISPOSAL OF MATERIALS:

All suitable material removed in excavation or as much thereof as may be needed as directed by the Engineer-in-charge shall be used in the construction of drain embankments, roadway embankments and for selected bedding materials or for backfill and around structures. If there is an excess of material in the excavation, it shall be used to strengthen the embankment on either side of the drain, deposited in low areas uphill of the drain to eliminate trapped drainage or otherwise wasted as directed by the Engineer-in-charge. The disposal of the excavated material shall be in accordance with clauses 8.1 and 8.2 of BIS 4701-1982.

4.8.5 MEASUREMRENT FOR PAYMENT

Foundation for structures will be measured for payment, as per drawing with due consideration for shuttering. The payment shall be made on volumetric basis for the quantities excavated to the required extent.

4.8.6 PAYM ENT:

Payment for excavation for structures shall be made at the unit price per cubic metre.

The rate of excavation for structures shall include the cost of all labour and materials and other temporary constructions, cost of all other work necessary to maintain the excavation in good order during construction, cost of removing such temporary construction where required and shall include the cost of disposal of the excavated material.

4.9 BACK FILL:

4.9.1 BACK FILL AROUND STRUCTURES

The item of the schedule for back fill around structures including pipe portions of structures includes all back fill required to place under these specifications.

4.9.2 MATERIALS:

The type of material used for backfill, the amount thereof and the manner of depositing the material shall be subject to approval of Engineer-in-charge. In so far as practicable backfill material shall be obtained from material removed from excavation for structures. But when sufficient suitable material is not available from this source or from adjacent drain excavation, additional material shall be obtained from approved borrow areas. The borrow pit excavation shall be in accordance with clauses 9.1 to 9.3 of B.I.S. 4701 - 1982.Where sand filling is specified, the sand shall be clean, free from admixture of foreign material and approved by the Engineer-in-charge before filling is commenced. Should there be a necessity to fill in a basement with sea sand, prior written approval of the Engineer-in-charge shall be obtained. Sand filling should be saturated with water before the construction is allowed to proceed. Filling around structures shall have well consolidated in layers of 15 cm. by ramming with iron rammers and cut ends of crowbars. When filling reaches the finished level the surface shall be saturated with water for at least 24 hours, allowed to dry and then rammed and consolidated.

Except as otherwise provided below, backfill material to be compacted shall contain no stones larger than 80 millimeters in diameter and if not be compacted shall contain no stones larger than 130 millimeters in diameter. If the excavation for the foundations of the structure is in swelling soils, a layer of cohesive non-swelling soil conforming to B.I.S. 9451-1985 should be interposed between the swelling soil and the structure.

4.9.3 PLACING BACK FILL:

Backfill shall be placed to the lines and grades shown on the drawings as prescribed in this paragraph or as directed by the Engineer-in-charge.

The surface to receive the filling shall be first prepared free from all roots, vegetation or spoil and wetted.

All backfill shall be placed carefully and spread in uniform layers so that all spaces around rocks and clods will be filled. Backfill shall be brought up as uniformly as

practicable on both sides of walls and all sides of structure to prevent unequal loading. Backfill shall be placed to about the same elevation on both sides of the pipe positions of the structures to prevent unequal loading and displacement of the pipe. The contractor shall provide at least 60 (Sixty) centimeter thick earth cover over the top of pipe to prevent damage from construction equipment loads. If a haul road is built over a pipe all backfill about and over the pipe shall be placed to a uniform surface and no humps or depressions will be permitted at the pipe crossing.

4.9.4 STRUCTURES ON FILL:

Where the original ground surface is below the base of a structure or below the of pipe all fill required for the structure foundation and all fill up to the bottom of the pipe shall be placed as compacted embankment. The embankment over the natural ground up to pipe bottom and over the pipe shall be laid in accordance with clauses9.2.4, 9.2.5 and 9.2.6 of B.I.S. 783 code of practice for laying of concrete pipe.

4.9.5 MEASUREMRENT AND PAYMENT

Payment for backfill about structure will be made as provided in the unit price bid therefore in the bill of quantities.

4.10 CONSTRUCTION / RAISING / STRENGTHENING OF EMBANKMENT

4.10.1 Raising/ strengthening of embankment shall be constructed to top widths and side slopes as shown on the drawings. The embankment shall be built to heights as directed above those shown on the drawings. The top of all the embankments shall be graded to be suitable for a road way and the top of other embankments shall be graded to scarified as directed. The extra height for settlement allowance shall be included. Before commencing over haul of material from the borrow area, levels of the banks to be formed in the sections where the over hauled materials is proposed for construction of embankments, shall be taken. After completing the construction of embankment, final cross section levels shall be taken and the volume shall be arrived at and payment shall be made to that quantity only. **Earth work beyond the theoretical design section will not be paid for.**

All materials shall be deposited in embankment so that cobbles, gravel and boulders are well distributed through other material and not nested in any position within or under the embankment.

4.10.2 In conjunction with construction of embankments, the contractor shall construct operation and maintenance roads and earth ramps adjacent to the canal and structures at his own expense. Suitable material from required excavation shall be placed as embankment for the roads and ramps. If sufficient suitable material is not available from required excavation the Engineer-in-charge may direct excavation from borrow areas. Decision of Executive Engineer on suitability/ usefulness of excavated

material for use in embankment section is final.

4.10.3 Embankment not be compacted shall be formed conforming to clause 6.6.1 to I.S. 4701-1982. The embankments shall be built in layers not exceeding 30 {thirty) cm. in thickness. Embankment shall be built in approximately horizontal layers carried across the entire width of the embankments to the required slopes. Embankments shall not be widened with loose material dumped from the top. Embankment built by excavating and hauling equipment shall be made in horizontal layers and shall be kept as close to level as practicable. The travel over the embankments during construction shall be routed so as distributed the compacting effect of the equipment to the best practicable advantage.

4.10.4 All materials required for the construction raising /widening of embankment and backfilling around the structures which are not available from canal excavation, excavation for structure or from excavation of other ancillary works shall be obtained from the approved borrow areas arranged by contractor at his own cost. Shallow cut will be permitted in the borrow areas if unstratified materials with uniform moisture contents are encountered. Each designated borrow area shall be fully exploited before switching over to the next designated borrow area. Haphazard exploitation of borrow pits shall not be permitted. The type of equipment used and the operations in the excavation of materials in borrow areas shall be such as to produce the required uniformity of the mixture of materials for the embankment. The contractor has to arrange borrow earth at his own cost and responsibility. No compensation whatsoever for change in limits and locations of the borrow areas and depth of cut for getting suitable earth shall be paid to the contractor. No excavation is allowed within a distance of five times the height of embankment from the outer toe. Borrow pits shall be operated so as not to impart the usefulness or mar the appearance of any part of the work or any other property. After excavation the borrow area will be dressed suitably.

4.10.5 All areas required for borrowing earth for embankment shall be cleared of all tree stumps, roots, bushes, rubbish and other objectionable materials. Construction and maintenance of approach roads and haulage road will be the responsibility of the contractor. The Department will have full right of way to those roads for inspection purposes. No extra payment is admissible as this is deemed to have been included in the unit bid price for earthwork in the bill of quantities being contingent to the main work.

4.10.6 The planning for execution should be such that all the useful excavated materials are utilized in embankment prior to utilization of borrow earth from outside. Only suitable materials as per specification shall be excavated, loaded and conveyed to the point of placement in the embankment. Unsuitably material if conveyed shall be removed and

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

disposed clear of the work site as directed by the Engineer-in-charge at the cost of the contractor. The maximum dimensions of stones pebbles and rock fragments etc. placed in the outside zone of the embankment shall not be more than 15 cm. and the quantity of such stone shall not exceed 5% of total quantity.

4.10.7 Construction of embankment shall begin at the toe of the fill and in no case shall embankment be widened by material damped form the top. The material shall be placed in the earth fill in the continuous horizontal layers not more than 30Cm. in thickness. The inside proud section shall not be removed if the lining work is not included under the same contract. Such proud section made out of borrow earth form outside only shall be paid as per bid price of the item in the bill of quantities. No payment shall be made for compaction for such proud section left.

During construction a small transverse slope form center towards edges should be given to avoid pools of water forming due to rains.

4.10.8 Embankment materials shall be placed only when the weather conditions are satisfactory to permit accurate control of the moisture content in the embankment materials. The contractor, shall provide suitable protection works to protect the slope from erosion due to rain water. No payment what-so-ever shall be made for providing such protection work and rectifying the monsoon damages.

4.10.9 In the mechanically compacted earth fill, settlement allowance shall be varied according to actual percentage of compaction, i.e. (100% - %actual compaction). For uncompacted earth fill, settlement allowance of 12.5% should be provided. The base width of the embankment shall not be increased to maintain the design slopes for additional height as settlement allowance, but the following procedure shall be adopted;

Settlement allowance shall be calculated at various levels and the elevation including settlement allowance shall be derived keeping the embankment width, at the designated levels unchanged. The edges of the embankment at the increased elevations (including settlement) when joined with the point where the slope has changed earlier below, shall give the slope to be adopted for construction.

4.10.10. The slopes of particular reach of the earth fill which has been completed in the manner described earlier shall be dressed neatly to the designated line and grade. Extra earth work done at sides are to be dressed and reused in the embankment.

4.11 DEWATERING:

Dewatering from the Excavation of foundation of structures when and where necessary during execution will have to be done by the contractor by using suitable pumps preferably 5HP including all T & P and incidentals required during pumping, Manpower required for pumping will be provided by the agency. A logbook will be maintained for the purpose which is to be issued by the Engineer-in-Charge. The

CONTRACTOR **EXECUTIVE ENGINEER, DRAINAGE DIVISION, KHORDHA**

logbook will be countersigned on a daily basis by the officers/officials in charge on behalf of Engineer-in-Charge.

2.11.1 PAYMENT:

Payment for dewatering will be made as per actual execution on 5hphr basis.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-5

5.0 SPECIFICATION FOR MATERIALS:

5.1 STONE FOR RANDOM RUBBLE STONE MASONARY:

The stone used for masonry shall conform to the relevant specification of clause 4.1 of I.S. 1597(Part II) 1967 and I.S. 1123-1957 code of practice for construction of stone masonry Part-I Rubble stone masonry.

The stone of the required quality shall be obtained from the approved sources. The common types of natural stones generally used are granite and other igneous rocks and shall be free from defects like decay, cavities, cracks, flaws, sand, holes, soil seams, veins, patches of soft or loose materials or any other deleterious materials like iron oxide, organic impurities etc. They should be free from rounded, weathered surface or skin coating which prevents the adherence of mortar.

All stones used shall be of uniform colour, texture, clean, hard, strong durable and shall have abrasion value of 45%, specific gravity of about 2.5, minimum crushing strength of 100 Kg/ Sqm and percentage of water absorption shall not exceed 5% by weight. The size of the stones shall be 15 cm and above measured in any direction. The length of the stones shall not exceed 3 times the height nor shall it be less than twice the height plus one joint. The breadth shall not be less than the height and the breadth on the base shall not be greater than ¾ th thickness of the wall nor less than 20 cm.

Stones not confirming to the standards mentioned above in Para 5.1 shall be removed away from the site by the contractor at his own cost.

The cost of collecting the stones for masonry will not be paid separately and their cost including the cost of quarrying, transporting, stacking, royalty shall be included in the unit price per cubic metreof relevant item in the bill of quantities.

i) The rates of materials in schedule of rates are basic rates excluding cost of conveyance, royalty and GST.

ii) Normally blasted stone should not be used for soling stone when hand broken stones are available.

iii) Hard stone is to be used in lieu of granite for slope protection work.

5.2 COARSE AGGREGATES FOR CONCRETE:

5.2.1 GENERAL

For the purpose of these specifications, the terms coarse aggregates designate clean well graded aggregate most of which is retained on 4.75 mm I.S. sieve and containing only so much lines materials as permitted for various types described under clause 2.2 of I.S. 383-1970

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

Coarse aggregate for concrete shall be furnished by the Contractor from the approved quarries. The contractor shall, unless otherwise specified in the tender notice and subsequently on this basis in the contract, be responsible for payment of quarry fees etc. on all materials.

THE GRADATION OF COARSE AGGREGATES SHALL BE AS PER THE FOLLOWING TABLE: -

I.S. Sieve Designation	Percentage by weight passing the sieve			
	40 mm & down graded	20 mm & down graded	16 mm & down graded	12.5 mm & down graded
80 mm	100	--	--	--
40mm	95-100	100	--	--
20 mm	30-70	95-100	100	100
16mm	--	--	90-100	--
12.5 mm	--	--	--	90-100
10 mm	10-35	25-55	30-70	40-85
4.75 mm	0-5	0-10	0-10	0-10

5.2.2 QUALITY

The coarse aggregate shall consist of naturally occurring (crushed or uncrushed) stones, and shall be hard, strong, durable, clear and reasonably free from veins and adherent coating and free from injurious amounts of disintegrated pieces, alkali, vegetable matter and other deleterious materials. Coarse aggregate will be rejected if it fails of meet any of the following requirements and the materials shall be taken away from the work site by the contractor at his own cost.

5.2.3. DELETERIOUS MATERIALS.

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

5.3 SAND FOR R.R. STONE MASONRY, CONCRETE, PLASTERING & POINTING WORKS:

The sand shall be collected from approved quarry / any other quarry duly approved by the Engineer-in-charge.

The sand shall consist of clean, dense, hard, durable uncoated rock fragments free from adherent coatings, organic matters and shall not contain more than permissible limit of clay balls or pellets as specified further below.

The sand shall not contain any harmful impurities such as iron pyrites, alkalis, salts, coal mica shale or similar laminates or other materials in such form or in such quantities as to affect adversely the hardening, strength, durability or the appearance

of the mortar used for masonry work.

Sand as used at the time of preparation of mortar, shall have a uniform and stable moisture content. Determination of moisture content shall be made as frequently as possible, the frequency for a given job being determined by the Engineer according to weather conditions.

Sand shall be well graded as per the table described further below and sand falling outside the specified limit due to excess or deficiency of coarse or fine particles, may be processed to comply with the standard by screening through suitably sized sieves and/or blending with required quantities of suitable sized sand particles. If the sand brought to site is not clean, it must be washed clean in water. Fine dirt sand, sea sand or sand containing saline impurities shall on no account be used. The cost of washing and screening shall be borne by the contractor.

5.4 CEMENT

Ordinary Portland Cement (OPC) of 43 grade conforming to I.S. 269-1976 and Portland Slag Cement (PSC) conforming to I.S. 455-1976 shall be procured by the contractor.

Only Ordinary Portland Cement (OPC) of 43 grade shall be used for R.C.C. constructions. Cement shall be procured from reputed manufacturers duly approved by the Engineer-in-charge.

Immediately upon receipt at the site of the work, cement shall be stored separately in dry, water tight and properly ventilated structures at the cost of the contractor. All storage facilities shall be subject to approval and shall be such as to permit easy access for inspection and identification.

Cement older than 90 days shall not be used without specific test/approval. For physical and chemical requirement, Ordinary Portland Cement (OPC) and Portland Slag Cement (PSC) shall conform to I.S. 269-1976 and I.S. 455-1976 respectively.

i. The cement of the companies having their own manufacturing units in the State of Odisha is to be used in all works.
ii. Weight of cement shall be considered as 14.30 quintals per one cum.
iii. Rate shall be considered as average factory price of three manufactures of cement inside the State.

5.5 WATER:

Water used for mixing of concrete and mortar shall be free from objectionable quantities of silt, organic matter, injurious amounts of soils, acids salts and other impurities.

5.6 SAND FOR FILLING

5.6.1 GENERAL

As per I.S. 365-1970, the sand is classified in different grading zones depending on the percentage passing on specified I.S. Sieves.

Therefore, the zone may be classified against coarse sand. (Zone I & II may be considered as coarse sand to Zone III & IV)

GRADATION OF FILLING SAND SHALL BE AS PER THE FOLLOWING TABLE: -		
IS sieve designation	**Percentage by weight passing the sieve**	
	Zone- I	Zone- II
10 mm	100	100
4.75 mm	90 to 100	90 to 100
2.36 mm	60 to 95	75 to 100
1.18 mm	30 to 70	55 to 90
600 microns	15 to 34	35 to 59
300 microns	5 to 20	8 to 30
150 microns	0 to 10	0 to 10

5.7 REINFORCEMENT BAR

5.7.1 GENERAL

Unless shown otherwise in 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.

i) All Reinforcement Steel and structural steel shall be procured and used as per specification mentioned in BIS' documents-IS: 1786 and IS:2062 respectively. Independent tests shall be conducted, whether required, to ensure that the materials procured conform to the specifications.

i) This steel shall be procured only from those firms, which are established, reliable, indigenous & primary producers of steel having Integrated Steel Plants (ISP), using iron ore as the basic raw material as per Ministry of Steel's guidelines.

ii) No re-rolled steel shall be permitted in works. All other specifications and guidelines of Ministry of Road Transport and Highway shall be complied.

iii) Steels shall be procured from manufacturers as notified by Works Department, Govt. of Odisha from time to time. Also, the steel manufactured by companies approved by EIC, WR, may be used following due procedure.

iv) In case of exigency other brands (Primary producers) of steel may be used with proper justification and prior approval of competent authority satisfying the tests as required by BIS Code.

v) Rates of steel shall be considered as fixed by SAIL. In case of non- availability of rates of SAIL, rates from other manufactures as notified by Works Department, Govt. of Odisha from time to time may be taken.

SUB-SECTION-6

6.0 R.R. STONE MASONRY, PLASTERING & RULE POINTING WORKS:

6.1 DESCRIPTION OF ITEMS:

6.1.1 Randum rubble hard granite stone masonry in C.M. as specified in BOQ for sub-structure/ super structure at all heights with approved quality of hard granite stone of 15cm and above size free from weathered skin including cost, carriage, royalty, taxes etc. of all materials with all leads, lifts and delifts including cost of scaffolding, tools & plants, curing, construction of coffer dam, if required, removal of scaffolding and all other incidental charges etc. complete as per specification, drawing and direction of the Engineer-in-charge.

6.1.2 12mm thick cement plaster in C.M. as specified in BOQ over brick work finished smooth for structures after racking out joints & cleaning including scaffolding with all leads, lifts, delifts, costs, carriage, taxes and royalty of all materials, curing and removal of scaffolding after completion of work including construction and removal of coffer dam if required with all other incidental charges etc. complete as per specification & direction of Engineer-in-charge.

6.1.3 20mm thick cement plaster in C.M. as specified in BOQ over stone masonry of structures finished smooth after racking out joints and cleaning including scaffolding with all leads, lifts, delifts, cost, carriage, taxes and royalty of all materials, curing and removal of scaffolding after completion of work including construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification and direction of the Engineer-in-charge.

6.1.4 Cement flush pointing to stone masonry of structures in C.M. as specified in BOQ finished smooth after racking out joints and cleaning including scaffolding with all leads, lifts, delifts, cost, carriage, taxes and royalty of all materials, curing and removal of scaffolding after completion of work including construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification & direction of the Engineer-in-charge.

6.2 CEMENT MORTAR:

6.2.1 GENERAL

The cement mortar shall consist of cement, sand, water and other approved admixture, as required each complying with its own specifications.

6.2.2 MIXING:

(i) The mortar ingredients shall be mixed thoroughly to ensure uniform distribution of all the component materials throughout the mass at the end of mixing period.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

(ii) If machine mixed the mixing of each batch shall continue for not less than the period stated in the following table after all materials are in mixer unless tests of mixer performance show that variations in these prescribed time is necessary and is acceptable.

Sl. No.	Capacity of mixer (m^3)	Time of mixing natural aggregates
1.	1.5 or less	1½ minutes
2.	2.5	2 minutes
3.	3	2 ½ minutes
4.	4	2 ¾ minutes
5.	4.5	3 minutes

The minimum mixing period specified are conditional on the materials being fed into the mixer in a manner which will facilitate efficient mixing and on operation of the mixer at its designed speed.

6.2.3 TRANSPORTATION OF MORTAR:

Mortar shall be transported from the mixer to the placing position as rapidly as practicable by methods that will prevent loss of ingredients or consistency

6.2.4 TESTS OF MORTAR :

When directed by Engineer-in- charge mortar test cubes shall be cast for the mortar used on the work and shall be tested in accordance with Appendix A of I.S. – 2250 – 1965 code of practice for preparation and use of Masonry mortar. Such cubes shall develop a compressive strength of at least 50Kgs/Sqcm for CM mix(1:5) and 75 Kg/sqcm for mortar mix (1:4). Work not conforming to the specifications will be rejected and the cost of removal and reconstruction shall be borne by the contractor.

6.3 R.R. STONE MASONRY

6.3.1 DRESSING OF STONES FOR R.R. MASONRY:

The face stone shall be hammer dressed in the face, sides and the beds to enable it to come into close proximity with the neighboring stone. The bushing in the face shall not project more than 40 mm. on an exposed face and 12 mm. on a face to be plastered. Stones with round surface shall not be used in the construction.

6.3.2 LAYING OF STONES FOR R.R. STONE MASONRY:

The masonry shall be laid to lines, levels, curves, shape shown in the drawing. Stones in the hearting shall be laid on their broadest face. Stratified stones must be laid on their natural beds. All bed joints shall be normal to the line of pressure upon them. Shaping and dressing shall be done before the stone is laid in the work. No dressing and hammering which will loosen the masonry will be permitted after it is once placed.

The courses of the masonry shall ordinarily be predetermined. Where there is

to be variation in the depth of courses, larger stones shall be placed in the lower courses, the thickness of course decreasing gradually towards the top of the wall. The variation in depth of course shall be adopted after the approval of the Engineer.

The stones shall thoroughly be wetted before placing on the bed of the mortar and before covering with mortar. The bed to receive the stones shall be cleaned, wetted and covered with a layer of fresh mortar to a smaller length so that stones can be laid before the mortar has set. All stones shall be bedded full in mortar and the vertical joints filled with mortar. The stones so set in the mortar shall be settled carefully in place with a wooden mallet immediately on placement and solidly bedded in mortar before it has set. Clean chips and spalls shall be wedged into the mortar joints wherever necessary. Such wedging should not disturb face stones. No dry or hollow space shall be felt any where in the masonry and each stone shall have all the embedded face completely covered with mortar. Pouring of water to the mortar laid on the joints and stones is prohibited.

In case any stone already set in mortar is disturbed or the joints broken, the stone shall be taken out without disturbing the adjoining stones and joints, the mortar thoroughly cleaned from the joints and the stone reset in fresh mortar. Attempts shall never be made to shade one stone over another already laid.

The bed of the face stones shall be horizontal unless otherwise ordered by the Engineer they shall be set in regular courses of uniform thickness from bottom to top throughout. No face stone shall be less than 15 cm. in thickness.

Unless otherwise ordered by the Engineer the height of each course shall be the height of the stone used in the course. Stones of different depths shall not be used, height of each course shall not exceed breadth at face nor thickness inwards.

The face stone shall be laid alternately in headers and stretchers, so as to break joints by at least 75 mm. Header shall project at least 100 mm. beyond the stretchers. The joints should not exceed 12 mm. in thickness.

All connected masonry in a structure shall be carried up to nearly at one uniform level throughout but when breaks are unavoidable, the masonry shall be raked in sufficiently long steps for facilitating joining of old and new work. The steeping of the raking shall not be more than 45 degrees with the horizontal.

6.3.3 JOINTS FOR STONE MASONRY:

For each 10 m of running length a vertical joint of 25 mm thickness or as directed by the Engineer shall be provided .

6.4 PROTECTION AGAINST DAMAGE

Care shall be taken by the bidder during construction that edges of jambs, sills, heads etc. are not damaged. In inclement weather, newly built works shall be covered with gunny bags or tarpaulin, so as to prevent the mortar from being

washed away.

6.5 CURING

All masonry work shall be kept constantly wet for a period not less than two weeks from the date of construction in order to avoid the mortar being dried up before it has attained final set and also to prevent crumbling. If the contractor fails to do curing to the satisfaction of the Engineer of the work, the latter will either make arrangement to cure the masonry at the risk and cost of the contractor or order the masonry to be dismantled. The masonry so dismantled shall be rebuilt by the contractor at his own cost.

6.6 INSPECTION

The brick (or stone) masonry should ensure its satisfactory performance and all recommended practice of workmanship shall be adopted at every stage. The Engineer-in-charge may inspect and reject the defective work which should be rebuilt at the cost of contractor, for which no claim for compensation what-so-ever will be entertained.

6.7 SCAFFOLDING FOR MASONRY, PLASTERING AND POINTING:

The scaffolding shall be sound and strong enough to withstand all loads likely to come upon it. The holes which provide space for horizontal members for supporting the scaffolding shall be filled up and made good.

6.8 QUALITY CONTROL FOR MASONRY WORK

Following rules shall be observed to ensure effective quality control of works.

(a) Do not place mortar which bleeds excessively.

(b) Clean the old masonry surface prior to starting masonry on it be wet sand blasting, chiseling and washing.

(c) Keep the surface continuously moist.

(d) Thoroughly and effectively broom into the old surface a layer of mortar and build the masonry work on it immediately.

(e) Masonry work shall invariably be done during day light hours.

(f) Ensure placing of stone in their natural bed.

(g) Avoid under-pinning after a stone is laid.

(h) Avoid inserting spalls in space between stones before it is filled up with mortar.

(i) Avoid inserting flat side of spalls at joints . Have all spalls driven end-wise.

(j) Before inserting spalls , shake the mortar well and vibrate the stone by hammer to facilitate excess mortar to come out .

(k) Distribute work so that fresh layer of masonry are started every alternate day .Incase of long stoppage of work suitable depression should be left to a depth of one or two course for proper laying and effective bondage.

6.9 MEASUREMENT AND PAYMENT FOR MASONRY WORK

Measurement for payment of random rubble stone masonry and brick masonry in cement mortar as specified in BOQ shall be made to the lines & dimensions shown or as directed by the Engineer-in-charge in the specified drawing. The quantity so executed shall be paid per cubic meter of constructions. No allowance shall be made for the masonry constructed beyond design section. The rate shall include cost, conveyance, royalty, taxes etc. of all materials, all labour cost, dressing charges, cost of mixing mortar, laying the masonry, curing, cost of required tools and plants, scaffolding, cost of construction and removal of coffer dam if required and all other incidental charges for satisfactory completion of the item of work.

6.10 CEMENT PLASTERING AND POINTING:

6.10.1 GENERAL:

I. For surface which is to be subsequently plastered or pointed, the joints of masonry shall be raked squarely for a minimum depth of 20 mm while the mortar is still green. The raked joints shall be well brushed to remove dust and loose particles and surface shall be thoroughly washed and cleaned.

II. The surface so prepared shall be kept wet for a period of minimum 24 hours proceeding to plastering or pointing.

III. Moistening, cleaning, surface drying and complete curing are utmost importance for thorough bond and water tightness.

6.10.2 PREPARATION OF SURFACE FOR PLASTERING

The roughening of the background improves the bond of plaster. All joints shall be thoroughly raked. After roughening the surface, care shall be taken to moisten the surface sufficiently before plastering as otherwise freshly exposed surface may tend to absorb considerable amount of water from the plaster. The surface shall be wetted evenly before applying the plaster. Care shall be taken to see that the surface is not too dry as this may cause lack of adhesion or excessive suction of water from the plaster. A fog spray may be used for this work. As far possible, the plastering work shall not be done under hot sun.

6.10.3 LAYING OF PLASTERING

Plaster when applied shall have a thickness of average 20 mm/16mm over stone masonry and 16 mm/12mm over brick masonry as specified in BOQ. The mortar shall be applied by steel trowels into the joints and filling the joints ensured by pushing the edge of steel trowel into joints. Mortar shall then be applied and roughly finished by steel trowel. The plaster surface will be finished by wooden trowel giving neat lines in plumb and plan.

6.10.4 PREPARATION OF SURFACE FOR POINTING

The joints in the masonry shall be raked out to a depth not less than the width of the joint or as directed when the mortar is green. Joints shall be brushed clean of dust and loose particles with a stiff brush. The area shall then be washed and the joint thoroughly wetted before pointing is commenced.

6.10.5 LAYING OF POINTING

The pointing to be done shall be flush pointing with cement mortar. The mortar shall not be spread over the corners, edges or surface of the masonry. The pointing shall then be finished as detailed below. The mortar shall be finished off flush and level with the edges of the stones, so as to give a smooth appearance. The edges shall be neatly trimmed with a trowel and a straight edge. Pointing should have minimum thickness of 20mm. When finished, the mortar pointing shall be restricted to the width of the joints and all superfluous mortar shall be removed with a trowel. The work shall be executed as rapidly as possible and not again touched after it has begun to set and kept wet for a minimum period of 14 days thereafter.

6.10.6 CURING

Specification is the same as for masonry as laid down in previous Paras.

6.10.7 MEASUREMENT AND PAYMENT:

(a) Measurement for payment of cement plastering and pointing shall be made on the basis of surface area of plastering or pointing actually contained within the profile as shown in the drawing or as directed by the Engineer-in-charge.

(b) The rate shall include cost of conveyance, taxes, royalty etc. of all materials, cost of labour, required tools and plants, providing extra slurry and mortar as required for the work, curing, construction and removal of coffer dam if required and all other incidental charges etc. for satisfactory completion of the respective item of work and excluding GST.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-7

7.0 CONCRETE

7.1 DESCRIPTION OF ITEMS

7.1.1 Cement concrete M-10/M-15 grade with 40mm/20mm &downgraded hard granite crusher broken aggregates as specified in BOQ free from weathered skin surface, dust and any other deleterious materials including cost , carriage, royalty, taxes etc. of all materials including machine mixing, watering, compacting with vibrators, hoisting and laying in position for a finished smooth surface and curing with all leads, lifts and delifts including hire and running charges of machineries, construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification, drawing and direction of Engineer-in-charge.

7.1.2 Cement concrete M-20 grade with 40mm/20mm &downgraded hard granite crusher broken aggregates as specified in BOQ free from weathered skin surface, dust and any other deleterious materials including rigid smooth centering and shuttering, cost, carriage, royalty, taxes etc. of all materials including machine mixing, watering, compacting with vibrators, hoisting and laying in position for a finished smooth surface and curing with all leads, lifts and delifts including hire and running charges of machineries construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification, drawing and direction of Engineer-in-charge

7.1.3 Reinforced Cement concrete M-20 grade with 20mm &downgraded hard granite crusher broken aggregates as specified in BOQ free from weathered skin surface, dust and any other deleterious materials including rigid smooth centering and shuttering, cost, carriage, royalty, taxes etc. of all materials including machine mixing, watering, compacting with vibrators, hoisting and laying in position for a finished smooth surface and curing with all leads, lifts and delifts including hire and running charges of machineries construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification, drawing and direction of Engineer-in-charge

7.1.4 Reinforced Cement concrete M-25 grade with 20mm & downgraded hard granite crusher broken chips as specified in BOQ free from weathered skin surface, dust & any other deleterious materials including rigid smooth centering and shuttering, cost, carriage, royalty, taxes etc. of all materials including machine mixing, watering, compacting with vibrators, hoisting and laying in position for a finished smooth surface and curing with all leads, lifts and delifts including hire and running charges of machineries, construction & removal of coffer dam if required with all other incidental

charges etc. complete as per specification, drawing and direction of Engineer-in-charge

7.1.5 Reinforced cement concrete M-30 grade with 20mm &downgraded hard granite crusher broken chips as specified in BOQ free from weathered skin surface, dust and any other deleterious materials including rigid smooth centering and shuttering, cost, carriage, royalty & taxes of all materials except steel with machine mixing, watering, compacting with vibrator, hoisting & laying in position for a finished smooth surface and curing with all leads, lifts &delifts including hire & running charges of machineries, construction & removal of coffer dam if required with all other incidental charges etc. complete as per specification, drawing and direction of Engineer-in-charge.

7.2 GENERAL

Concrete shall be composed of cement, sand, aggregate, water and any other admixture as specified in recommended proportion well mixed and brought to the proper consistency. Tests shall be carried out on the concrete at specified intervals during the progress of work and the mixes modified as necessary in order to consistently secure the required strength, work ability, density and impermeability together with the maximum practicable economy. As per approval of Engineer in charge on recommendation of quality control organization, the water cement ratio for the concrete will be regulated by the requirements of strength durability and workability. The concrete shall be uniform consistency and quality throughout any pour and for similar parts of the same structure. However, the consistency composition shall be such that the concrete can be worked into all corners. The allowable slump or consistency shall be as directed. The consistency of the concrete shall be varied only by increasing or by decreasing the amount of cement paste in each batch and not by any change of water cement ratio.

The consumption of cement, coarse aggregates & sand for one cubic meter of various grade of concrete shall be calculated as per provision against scheduled of rate.

Grade of concrete	With 40mm & downgraded aggregates			With 20mm & downgraded aggregates		
	Cement (kg)	Coarse aggregates (cum)	Sand (cum)	Cement (kg)	Coarse aggregates (cum)	Sand (cum)
M 15	270.00	0.90	0.45	280.00	0.90	0.45
M 20	344.00	0.90	0.45	347.33	0.90	0.45

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

M 25	--	--	--	403.33	0.90	0.45
M 30	-	-	-	406.66	0.90	0.45

In case of actual consumption of cement, as per direction of Engineer-in-charge on recommendation of design mix by Quality Control Organisation for the grade of concrete if different from the above, the cost for excess or less consumption will paid extra or deducted respectively.

7.3 STRENGTH OF CONCRETE

Grades of concrete	Compressive strength in N/mm^2 on 150mm cube	
	Minimum at 7 days	Minimum at 28 days
M-15	7	10
M-20	10	15
M-25	13	20
M-30	15	30

7.4 STORAGE OF AGGREGATE

(a) Aggregate shall be stacked in such a way as to prevent the intrusion of foreign materials such as soil, vegetable matter etc. Heaps of fine and coarse aggregates shall be kept separate. Where different sizes of fine or coarse aggregate are procured separately, they shall be stored in separate stock piles, sufficiently away from each other to prevent the materials at the edge of the piles from getting intermixed with each other.

(b) The aggregates shall be stock-piled adjacent to the mixer site so as to require minimum re-handling and labour when conveyed to the mix.

(c) The aggregates shall be placed on a dry patch of ground. The aggregates shall be kept free of dirt, rubbish, papers, vegetable matters etc. on the stock piles.

(d) To minimize moisture variation the stock piles shall be spread over as large in area as possible but left low and fairly uniform in height preferably 1.25 to 1.50 meter and the lowest layer of about 30 cm height shall be allowed to act as drainage layer and not used till end.

7.5 FORM WORKS

a. Form shall be used wherever necessary to confine the concrete and shaping 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 contractor's personnel and by the Engineer-in-charge and shall be in 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 beveled edges on permanently exposed concrete surfaces. Interior angle of inter setting concrete surfaces and edges of construction joints shall not be beveled except where indicated on the drawings.

Suitable struts or stiffeners 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 soil, 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 MS sheet or other suitable smooth faced nonabsorbent materials as specified. Supports may be of timber of steel. Suitable wedges in pairs 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 tie or wires used for securing this form work shall be left exposed of the face of 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

commercial forms of oil.

f. Removal of forms

The steeping of formwork shall conform to clause 10.3 of IS 456-2000. 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 wrapped transitions shall be removed as soon as the concrete has attained sufficient stiffness prevent sagging. Any needed repairs or treatment required on such slopping surfaces shall be performed at once and be followed immediately by permitted curing.

To avoid incessant 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 works for constructing forms including any necessary treatment or coating of forms is included in the item of form work provided in the bill of quantities.

7.6 MIXING

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 9 of IS 456-2000. The mixer should comply with IS 1971-1985 (IS Specifications for batch type concrete mixers)

The concrete as discharged from the mixer shall be uniform in composition and consistency from batch to batch. Workability shall be checked at frequent intervals as IS 1199-1959. Mixer shall be examined regularly by the Engineer-in-charge or his authorized Engineer for changes in conditions due to accumulation of hardened concrete or mortar or to wear of blades.

After mixer that at any time produces unsatisfactory mix, shall not be used 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.

(a) For all work concrete ingredients shall be thoroughly mixed in mechanical mixer to ensure uniform distribution of all component materials throughout the concrete at the end of the mixing period and shall be as dense as possible,

plastic enough to consolidate well, Mixing shall be done as per I.S.456-1978.

(b) Mixing shall be continued until there is an uniform distribution of the materials and the concrete is uniform in colour and consistency. and to the satisfaction of the Engineer. The time of mixing shall be as shown in Table-1 of IS: 457-1978 reproduced herein.

Capacity of mixer	Minimum time of mixing	
	Natural aggregates	Manufactured aggregates
3 m^3 or larger	2 minutes	2½ minutes
2 m^3	1½ minutes	2 minutes
1 m^3 or smaller	1¼ minutes	1½ minutes

(c) The concrete as discharged from the mixer, shall be uniform in composition and consistency, Workability shall be checked at frequent intervals as per IS: 199 –1959. Mixers will be examined regularly by the Engineer-in-charge for changes in conditions due to accumulations of hardened concrete or mortar or to wear and tear of blades. Any mixer that at any time produces unsatisfactory mix, shall not be used until repaired. If repair attempts are unsuccessful, a defective mixer shall be replaced. Batch size shall be at least 10% but not in excess of the rated capacity of the mixer.

(d) The first concrete batch at the start of continuous mixing operation or after lapses of 30 minutes in continuous mixing operation shall be made richer by the addition of extra cement as directed.

(e) The full contents of the drum shall be discharged quickly to avoid segregation.

(f) The minimum mixing period specified are conditioned on the material being fed into the mixer in a manner which will facilitate efficient mixing and an operation of the mixer at its designed speed. The following sequence of charging the mixer may be adopted.

Five to ten percent of the total quantity of water required for mixing adequate to wash the drum thoroughly shall be introduced before the other ingredients in order to prevent any caulking of the cement on the blades or side of the mixer.

i. All dry ingredients (Cement, fine and coarse aggregates) shall be simultaneously fed into the mixer in such a manner that the period of flow for each ingredient is about the same. Eighty to Ninety percent of the total quantity of water required for mixing shall be added uniformly along with the dry ingredients.

ii. The remaining quantity of water shall be added after all the other ingredients are in the mixer.

iii. Portion of the coarse aggregate, however may be added last. This facilitates clearance of the chutes and removes the fine aggregate or cement adhering to the sides.

(g) Concrete which has been kept unused for more than 30 minutes after the addition of water shall be rejected unless the concrete is in such a condition that it can be subsequently vibrated in place and its use is specifically permitted.

(h) When the mixer is stopped, before placing again any ingredients in the mixer all hardened concrete or mortar shall be removed from inner surface of the mixer.

(i) The re tempering of partially hardened concrete or mortar requiring renewed mixing with or without the addition of cement, aggregate or water shall not be permitted.

(j) A representative of Engineer-in-charge shall supervise all stages of production of concrete; preparation of test specifications and site test shall be supervised.

7.7 TRANSPORTATION OF CONCRETE

Concrete shall be transported from mixer to the place of final placement as rapidly as possible by method which will prevent segregation of the ingredients or slump loss in excess of 25mm and/ or a loss in air content of more than one percent before the concrete is placed in the works. It shall be transported, laid and compacted in its final position within 30 minutes of its discharge from the mixer unless carried in properly designed agitators. Whenever the length of haul from the mixing plant to the place of deposit is such that the concrete unduly compacts or segregates suitable agitators or transit mixers shall be used for conveying concrete.

7.8 PREPARATION BEFORE PLACING CONCRETE

7.8.1 GENERAL REQUIREMENT

Concrete shall not be placed in any part until all form work required is completed as per drawing & specification and no concrete shall be deposited until the foundation has been inspected and approved by the Engineer-in-charge.

7.8.2 FOUNDATION SURFACES

(a) Immediately before placing concrete all surfaces of foundations upon or against which the concrete is to be placed, shall be free from standing water, mud and debris. All surfaces of rocks upon or against which concrete is to be placed shall in addition to the foregoing requirement be cleaned and free from all lubricants. Objectionable coating and loose semidetached or unsound fragments are to be

removed. The surface of absorptive foundations upon or against which concrete is to be placed shall be moistened thoroughly and kept sufficient wet for at least 24 hours prior to placing concrete so that moisture will not be drawn from the freshly placed concrete.

(b) In the case of earth or shale foundations, all soft or loose soft and surface debris shall be scraped and removed.

7.8.3 R.C.C. WORK

No concrete shall be placed unless the reinforcement and centering & shuttering provided is checked, premeasured and approved by the Engineer-in-charge.

7.9 PLACING AND COMPACTING CONCRETE

7.9.1 GENERAL

(a) All surfaces upon or against which concrete is to be laid shall be prepared in accordance with the drawings.

(b) If concreting is not started within 24 hours of the approval being given, it shall have to be obtained again.

(c) All absorptive surfaces against which concrete is to be laid shall be moistened thoroughly so that moisture will not be withdrawn from the freshly placed concrete. The surfaces however shall be free from standing water. The concrete shall be deposited as nearly as possible in its final position and compacted before setting commences and should not be subsequently disturbed. Methods of placing should not be such as to avoid segregation. Care should be taken to avoid displacement of reinforcement or movement of form work. All concrete which has set before placement shall be rejected and immediately removed from site of work.

(d) The construction joints at the end of each day's work should be left vertical only at location as approved by authorized representative of the Engineer-in-charge.

7.9.2 COMPACTION

Concrete shall be thoroughly compacted during the operation of placing and thoroughly worked.

(a) All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators or thappies in such a manner that it is free from pockets of coarse aggregate and is in intimate contact with surface of forms.

(b) During placing and until curing is completed the concrete shall be protected against the harmful effect of exposure to sunlight, wind and rain as direct.

7.10 CURING AND PROTECTING

7.10.1 GENERAL.

The contractor shall furnish all materials and perform all work required for curing concrete. All concrete including bed and sides of drain lining shall be cured by water curing.

The precast slab for drain 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 which may stain other concrete. The sand or curing mats shall be removed after 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 surfaces. 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 conforming to IS 456-2000 to prevent structural collapse or other damage by careful form removal. Where required repair of all minor surface imperfection shall be made immediately after form removal and prior to curing, minor surface repair shall be completed within 2 hours after 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.

In case the curing operations are inadequate or unsatisfactory, the Engineer-in-charge shall be entitled to take such steps as he may deem necessary to make good the deficiencies and defects at the Contractor's risk and cost. Curing and protection should confirm of IS: 457-1957 with the latest amendments.

7.10.2 MATERIALS:

Concrete cured with water shall be kept wet at least for 28 days from the time the concrete has attained sufficient set to prevent detrimental efforts to the concrete surfaces. The concrete surfaces to be cured shall be kept wet covering them with water saturated materials by using a system of perforated pipes, mechanical sprinklers or porous hose or by other methods which will keep all surface continuously wet. All curing methods are subject to approval of Engineer-in-charge.

7.10.3 COST:

The cost of furnishing all materials and performing all work for curing concrete shall be included in the price bid in the bill of quantities for the concrete on the particular curing methods are required.

7.11 TESTS AND STANDARDS OF ACCEPTANCE

7.11.1 GENERAL

Testing of concrete shall be carried out by the Quality Control Organization of the Department. The representative samples shall be taken from the site of work during laying of the concrete as desired by Engineer-in-charge for testing purpose.

7.11.2 SAMPLING PROCEDURE AND FREQUENCY

7.11.2.1 A random sampling procedure shall be adopted to ensure 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.

7.11.2.2 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. every 50 cum. or part thereof.	4 plus one additional sample for

Note At least one sample shall be taken during each shift.

7.11.2.3 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.

7.11.2.3 CONSISTENCIES:

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

Sl. No.	Place condition	Degree of workability	Value of workability.
1.	Concreting of light reinforced sections without vibration or heavily reinforced section with brat ions.	Medium	25mm to 75mm slump for 20 aggregates.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

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 for concrete paver finish.

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 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 t of water and sand batched for concrete shall be adjusted 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 after mixing but before placing will not be permitted. Uniformity in concrete consistency from batch to batch will be required.

7.11.3 TEST SPECIMEN

Three test specimens shall be made from each sample for testing at 28 days. Additional cubes may be required for various purposes, such as to determine the strength of concrete at 7 days or at the time of striking from work, or to determine the duration of curing or to check the testing cubes by accelerated methods as described in IS: 9013-1978. The specimen shall be tested as described in IS: 516-1959.

7.11.4 TEST STRENGTH OF SAMPLES AND ACCEPTANCE CRITERIA

(a) The test strength of the samples shall be the average of three specimens. Individual variation shall not be more than 15% of the average.

(b) Contractor shall provide necessary unskilled labour and facilities for collection of samples, curing in tanks, transportation of cores etc. and his authorized representative shall remain present at the time when the samples cores etc. are collected. Testing shall be carried out at the testing laboratories set up close to the site or at any other laboratory that the Engineer-in-charge may decide upon and the results given thereby shall be considered as correct and authentic and acceptable to the contractor. The contractor shall be given access to all operations and tests that may be carried out as aforesaid.

7.12 MEASUREMENT AND PAYMENT OF CONCRETE

Measurement and payment for cement concrete items shall be made on the basis of the actual volume of the concrete laid for finished items. The rate includes the cost of labour and materials, plant etc. involved in providing cement, slurry and mortar on concrete and construction joints shall be deemed to be included in the unit rates for the respective items. The rates shall include construction of Foot Bridge and traffic island, coffer dam and removal of the same if required and all other incidental charges as produced finished item of work. For R.C.C. work, the cost of round tor steel rod including bending and binding etc. shall be paid as a separate item explained else where.No claim for extra payment, in case of higher strength of concrete than designated, will be entertained.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-8

8.0 MISCELLANEOUS ITEMS OF WORK

8.1 SUPPLYING, LAYING & FIXING OF R.C.C. HUME PIPES

8.1.1 DESCRIPTION OF ITEMS

Supplying, laying and fixing R.C.C. hume pipe in position and collar jointing with necessary twisted and coal tarred hemp yarn including crawling and filling with C.M. (1:1) and finishing the same smooth and curing including cost, conveyance, taxes etc. of R.C.C. hume pipes and all other materials and all other incidental charges etc. complete as per specification and direction of Engineer-in-charge.

8.1.2 GENERAL

R.C.C. hume pipe shall have diameter as specified in the schedule of quantities and shall be of non pressure NP_2/NP_3 class conforming to IS 458-1971. Length of the pipe shall not be less than 2.00 M or otherwise directed by the Engineer. The contractor shall order the pipes required for the work on the basis of the construction drawings supplied to him by the Engineer. Pipes not conforming to the required specification shall be rejected and the pipes shall be removed away from the work site by the contractor at his own cost.

Work shall be done as per IS 783-1956 or its latest edition. Reasonable care shall be exercised in loading, transporting and unloading the concrete pipes. Handling shall be such as to avoid impact. All pipes shall be inspected thoroughly before being laid. Broken or defective pipe shall not be used. Trench shall be of sufficient width side slope to provide for free working space in minimum 30 cm on either side of the pipe. Pipes shall be lowered into the trenches by use of standards appliance. Pipe shall be laid true to line and as specified on the construction drawings. Laying of pipes shall be along proposed grade of the slope. The socket ends of pipe shall face upstream. The connections of the pipes shall be joined together in such a manner that these shall produce perfect even surface along the inside of the pipe. The joining of hume pipes shall be done with necessary twisted and coal tarred Hamp yarn including crawling and filling with cement mortar (1:1) and finishing the same smooth and curing for a minimum period of 14 days shall be made. In no case pipes shall be laid directly on rock or other hard materials. Proper care shall be taken to avoid any type of accidents during process of handling of R.C.C. hume pipes.

Trenches shall be kept free from water until the material in the joints has hardened. Walking or working on the completed pipe shall not be permitted until the trench has been back filled to a height of at least 45 cm. Over the pipe except as may necessary for back filling and compaction.

Trenches shall be backfilled after pipe has been laid subject to the condition that joining has hardened. Only selected materials shall be used for backfilling. Filling of the trench shall be carried out simultaneously on both sides of pipe in such manner that unequal pressure does not occur.

8.1.3 MEASUREMENT AND PAYMENT

Measurement for payment shall be made on running metre basis of the hume pipe line. The rate shall include cost of hume pipes including cost of loading, conveying, unloading, hauling, handling, storing & laying in position with cost of jointing and curing and all other incidental charges to complete the work as per the specification and direction of Engineer-in-charge.

8.2 ROUGH STONE DRY PACKING

8.2.1 DESCRIPTION OF ITEMS

Rough stone dry packing in aprons and revetments with approved quality of hard granite stones of 30 cm size and above or 15 cm to 30 cm size as specified in BOQ to required shape with all leads, lifts and delifts including cost, carriage, taxes, royalty etc. of stone, labour for preparation of surface for packing if required and all other incidental charges etc. complete as per drawing, specifications and direction of the Engineer-in- Charge.

8.2.2 GENERAL:

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 angular. 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.

8.2.3 MEASUREMENT AND PAYMENT

Measurement for payment will be made on the basis of volumetric measurement of finished stone packing. The unit rate 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.

8.3 WEEP HOLES:

Providing weep holes and placing in position 10 cm dia Asbestos Cement pipes with non-corroding jalli as per design and drawings.

8.3.1 GENERAL

a) Weep holes of the size as shown on the drawings shall be provided and they shall extend through the full width of the masonry with a slope of about 1 vertical to 20 horizontals towards the draining face to drain moisture from the backfilling, the spacing of holes shall be as per the drawings in either direction staggered. The sides and bottom of weep holes in the interior shall be made up in the stones/ concrete having fairly plain surface as channel so formed slab bed over with stones/ concrete lintels not less than 150mm and each side including centering and shuttering. In stone masonry, generally the height of weep holes shall be the same as the height of the course in which they are formed. Filters behind weep holes with jally shall be provided to the dimensions and grades as shown on the drawings with inverted backing of approved quality filter materials in back filling side.

b) In case the length of the pipe falls short of the standard length of the pipe, it shall be joined with necessary collars in cement mortar 1:3 of as per the instruction of the Engineer to form continuous hole in the body of wall. Defective pipes or defective work shall not be measured and paid. These shall be removed and replaced by the contractor. The interior of all pipes shall be free from sand, mortar or dirt and other foreign matter. Care shall be taken to prevent entrance of any foreign matter into the pipes during progress of work.

8.4 TURFING:

8.4.1 DESCRIPTION OF ITEMS

Fine dressing and turfing the slopes of canal/drain banks with compacted dub grasses including cutting & conveying the turf by mechanical means and placing the turf with all leads, lifts and delifts including watering up to full size growth of the grass and all other incidental charges etc. completed as per direction of the Engineer-in-charge. (Full payment will be made only after survival of the turf).

8.4.2 GENERAL:

The turf shall be of good approved quality ‘dub grass’ not less than 15cm size. The contractor shall have to arrange the ‘dub grass’ at his own cost. The contractor shall have to make good the damages to the slopes of the embankment due to rain cuts etc. and bringing it to proper profile before the turf is laid. The turf shall be laid to finished designed slope and profile, rammed for compaction and be watered up to green growth of the grass. There will be deduction of 20% quantity of earth work if the agency fails to complete the turfing work.

8.4.3 MEASUREMENT AND PAYMENT:

Measurement for payment of turfing shall be made after full and satisfactory growth of the turf. Measurement shall be made on square meter basis and the until rate shall be for 1 sqm of the area. The rate shall include cost of all labour, cost, conveyance including cost of watering and all other incidental charges to complete the work as per specification and direction of Engineer-in-charge.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SUB-SECTION-9

9. SPECIFICATION FOR EARTH WORK IN THE CONSTRUCTION OF EARTH EMBANKMENT FOR ROAD WORK:

9.1.1 SCOPE

The specification shall apply to the construction of embankment & of miscellaneous backfills with materials obtained either from excavation for road construction, borrow-pits or either selected borrow areas. All embankments shall be constructed in accordance with the specifications & in conformity with the alignment level, cross sections & dimensions shown in the plans or as started by the Engineer-in-Charge.

9.1.1. MATERIAL: The scope of these specifications are restricted to soil alone, being the construction material. The soil used for embankments shall be free form stumps, tree roots, rubbish or other material likely to deteriorate or effect the stability of the embankment. Only materials considered suitable by the Engineer-in-Charge shall be utilized for the construction & that considered unsuitable shall be disposed of as directed by him.

9.1.2. For the purpose of these specification soil will be taken to include gravel or moorum.

9.1.3. The selection of the materials to be used in the construction of embankment shall be made as per the directions of the Engineer-in-Charge according to soil survey & laboratory investigation conducted by him.

9.1.4. Quality control test such as gradation, P.I. Standard proctor test, deleterious constituents, natural M.C etc. shall be performed as directed by the Engineer-in-Charge & no extra payment will made in this regard.

9.2 EXCAVATION OF BORROW PITS:

9.2.1. As far as possible no borrow pits should be dug on road land. Before deciding to dig borrow pits on road land, earth for the embankment should be obtained.

(i) from cutting of nearby sections of the road.

(ii) from excavation improving sight distances at nearby curves.

(iii) by sectioning an adjacent bullah or waterway where necessary

(i) by excavating cuts to lead drainage water away form the road

(ii) by excavating side drains & catch water drains

(iii) from waste land outside the road land

(iv) from bumps above the general ground level with the road land

(v) by excavating tanks

(ix) from land acquired temporarily outside road land

(x) from soil mounds resulting form the digging of well & borrowings from fields in the vicinity of the road

9.2.2. Borrow pits should be rectangular in shape with on side parallel to the central line or the road. If no road land, they could be dug as near the road boundary as possible.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

9.2.3. No borrow pits should be dug within 6 mtr. (16 ft.) of the final section of the road embankment, after making due allowance for future development.

9.2.4. Borrow pits should not be dug continuously. Ridges of not less than 8 mtr. (25 ft.) width should be left at intervals not exceeding 30 mtr. (100 ft.) Small drains should be cut through the ridges, in necessary to facilitate drainage.

9.2.5. When it becomes necessary to borrow earth from temporarily acquired cultivatable lands, the depth of borrow pits should not exceed 45cm. (1.5 ft.). The top soil to a depth of 15cm (6") should be stripped & stacked a side. Thereafter soil may be dug/cut to a further depth not exceeding 30 cm. (12") & used in forming the embankment. The top soil should then be spread back on the land. It is most important to adopt this practice when soil borrowed is from rich cultivatable land.

9.3 CONSTRUCTION PRELIMINARY OBSERVATIONS:

9.3.1 **Clearing & Grubbing:** Prior to the commencement to earth work the site shall be cleared of construction, including building, fences, abandon drainage structures & vegetation such as tree, roots undergrowth, grass, rubbish etc. except where it may be desirable to retain the vegetation for appearance shade or other reasons. Complete clearance shall be carried out within the actual construction limits. All trees & shrubs which are not expected to interfere with the construction & use of the highway should be preserved. Cost of removal or ordinary vegetation & minor jungle growth & disposal thereof as directed by the Engineer-in-Charge shall be included in the tender rate & shall not be paid for as extra.

9.3.2 Three stumps should be not extended more than 1ft. above the original ground nor should they be closer than 2 ft. to any sub-grade shoulder or slope surface. On areas to be cleared beyond the embankment & earthwork lines, stumps must be cut down below ground level so that appearance may not by unsightly.

9.3.3 The removal bush & stumps shall in cases be cleared away to waste lands preferably burnt no locations away from the road side. Materials possessing any salvage value should be stacked as directed by the Engineer-in-Charge.

9.3.4 Care shall be taken to see that unsuitable waste materials are disposed off in such a manner that there is no likelihood of it getting mixed with the materials proposed to be used for embankment construction.

9.3.5 **COMPACTING ORIGINAL GROUND:** In all cases where condition permit, the original ground shall be consolidated as much as reasonably possible or as directed by the Engineer-in-Charge by rolling or other means. Any empty pockets or depressions left in the soil as a result of clearing grubbing operations shall be filled & compacted. Nothing extra shall be paid for these operations.

9.3.6 Where so directed by Engineer-in-Charge any unsuitable materials occurring in the embankment foundation shall be removed & replaced by approved materials.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

9.3.7 Where the embankment is to be placed on steep sloping ground the surface of the ground shall be benched in step or trenched or broken up in such manner that the new materials will have bond with existing surface & the cost thereof shall be included in the tendered rate.

9.3.8 Where the embankment is to be placed over an existing road surface, the surface shall be scarified, so as to provide sample bond between old & new materials.

9.3.9 Embankment work shall not proceed until the foundation have been inspected by the Engineer-in-Charge for satisfactory & approved.

9.4 CONSTRUCTION PLACING OF EMBANKMENT MATERIALS:

9.4.1 Only materials as approved by the Engineer-in-Charge shall be utilized in the embankment. The work shall be so planned & executed that the best available materials are saved for the top portion of the embankment & sub-grades. Approved materials shall be obtained from approved area.

9.4.2 **EMBANKMENT SLOPES:** The embankment shall be built to have side slopes as shown in the drawings or as directed by the Engineer-in-Charge of the work.

9.4.3 **PLACING SOIL IN LAYERS:** To obtain adequate compaction, the embankment shall not be placed until the layer under construction has been thoroughly compacted to satisfy the requirements laid down here after.

To ensure correctness, the execution of the toe-lines on the embankment shall be marked carefully with pages at close interval. The profile with due allowance for settlement shall be set up with the help of bamboos & string. The earth work of the embankment will be carried on uniformly in layer according to these profiles. Due care shall be exercised to ensure the loose thickness of each layer does not exceed the specified limit.

9.4.4 Layers exceeding 9” in loose depth shall be permitted only when the Engineer-in-Charge is satisfied that the compaction plant proposed to be used will achieve the specified compaction throughout the whole depth of the layer. Provided further that when a VRR is used the thickness of the loose layer shall not exceed the length of the tamping feet by more than 2”. The embankment materials shall be deposited in layer not more than 9” loose thickness unless otherwise specified & compacted to 100% proctor density at O.M.C with P.R.R.

9.4.5 Unless otherwise directed, the soil shall be spread uniformly over the entire width of the embankment.

9.4.6 If the soil shall less than the desired moisture content water shall be added to it either in the borrow pits before excavation is made, or after the soil is spread loosely on embankment without any extra charge. Addition of water may be made in the former case through flooding or irrigating the borrow area & in the letter case through sprinkling the water either directly from a hose line or form a truck mounted water

tank.

9.4.7 If the soil as delivered to the road formation is too wet, it shall be dried, by aeration & exposure to Sun, till the moisture content is acceptable for compaction.

Should circumstances arise where owing to wet weather the moisture content of certain soil cannot the reduced to the appropriate amount by aeration, the compaction of these soils shall be suspended.

9.4.8 After adjusting the moisture content, the soil shall be processed by the means of graders, borrows rotary mixers or other suitable equipment, until the layers are uniformly wet without any cost of Govt.

Clods or hard lumps of earth shall be broken down to size preferably of the order of 5 cm. (2") but under no circumstances shall be maximum size of such clods exceed 15cm. (5") when being placed in the body of the embankment & the maximum size shall not exceed 6 cm. (2.5") when being place on the top to a depth of 50 cm. (18") of the embankment.

9.4.9 MOISTURE CONTENT & DENSITY:

The moisture content of each layer of soil at the time of compaction should be as directed by the Engineer-in-Charge. The M.C. of each layer of soil at the time of compaction should be at O.M.C. However, the tolerance limits for this MC of the soil with respect of OMC are between 1% above the optimum & 2% below the optimum value. The soil spread in layers shall be thoroughly compacted to the required densities & stipulated by IRC in their code 31.32 para 15.3, 15.4, 15.5 & 16. Each layer will be tested in field, for density & pronounced accepted by the Engineer-in-Charge before the next layer is laid.

9.4.10 The surface of the embankment shall at all times during construction be maintained as such a cross fall as will shed water & prevent pounding.

9.5 EMBANKMENT AROUND STRUCTURES

9.5.1 The filling around & over culverts & other structures in the embankment area shall be carried out independently of the work on the main embankment. The embankment shall be brought up simultaneously in equal layer on each side of the structure to avoid displacement & unequal pressure.

9.5.2 The soil in such cases shall be deposited in layers not exceeding 6" loose thickness & shall be compacted thoroughly & to the satisfaction of the Engineer-in-Charge. Where it may be impracticable to use power rollers or other heavy equipment, the compaction shall be carried out be mechanical tampers or other approved methods.

9.6 EMBANKMENT AROUND THE STRUCTURES

9.6.1 The filling around & over culverts & other structures in the embankment area shall be carried out independently of the work on the main embankment. The embankment shall be brought to simultaneously in equal layer on each side of the structure to

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

avoid displacement & unequal pressure.

9.6.2 The soil in such cases shall be deposited in layers not exceeding 6" loose thickness & shall be compacted thoroughly & to the satisfaction of the Engineer-in-charge. Where it may be impracticable to use power rollers or other heavy equipment, the compaction shall be carried out be mechanical tampers or other approved methods.

9.7 COMPACTION CONTROL

9.7.1 PRIMILINARY INVESTIGATION : Preliminary investigations shall be made by the contractor at his own cost as per direction given by the Engineer-in-charge to determine the most economical procedure to be adopted to obtain the specified degree of compaction & the necessary field control (as a result of the suggested investigations it is generally found that it is sufficient to ensure that the soil laid in layers of the specified thickness, with the specified moisture, & it is rolled with the number of passes of the compaction equipment which are found to produce the specified degree of compaction).

9.7.2 The compaction control on the work in the field will be exercised by the department through frequent moisture content & density determination. The following control test shall be made on the borrow materials.

Sl. No.	Test	Test Method	Min. desirable frequency
1	Gradation	I.S. 2720 Pt. IV	1-2 tests per 300 cum of soil
2	P.I	I.S 2720 Pt. V	1 Test for 25 M^3
3	Standard Proctor Test	I.S. 2720 Pt. VII	-do-
4	Deleterious constituents	I.S. 2720 Pt. XXVII	As required
5	Natural M.C.	I.S. 2720 Pt. II	One test for 250M^2 of soil
	Dry density	I.S. 2720 Pt. XXVII	Generally, at least one test per 100 M^2 of compacted area for the body of embankment to be increased to one test 500-1000 cum of compacted area for the top sub grade layers of 50cm or 1-2 tests for 3000 cum of soil.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

9.8 **ANALYSIS & ACCEPTANCE OF DENSITY RESULT**

9.8.1 Except otherwise directed, at least one measurement of density shall be made for each 1000 m^2 (10000 sqft) compacted area. Test locations shall be chosen only through predetermined random sampling techniques. Control shall not be based on the result of any one test but on the mean value of 5-10 density determination. The number of tests in one set of measurement shall be 5 as long as it was felt that sufficient control over borrow materials & the method of compaction was being exercised, but if there was any doubt about this control, or considerable variations were observed between individual density result the minimum number of tests in one set of measurement shall forthwith be increased to 10. The acceptance of results shall be subject to condition that the mean dry density equals or exceeds the specified density & the standard deviation for any set of result in below 0.88 gm. Per cc (5 lb per cu. Ft.)

9.8.2 In general, the control at top sub-grade layers of the formation shall be more strict, with density measurements being done as stated above, at the rate of test per 500-1000 sqft. (50-100) sqm. of compacted area. Further for the determination of mean density & standard deviation, the number of tests in one test of measurements shall not be less than 10. In other respects, the control will be similar to as spelt out in the previous para.

9.8.3 If for any reasons it has not been found possible to conduct the minimum number of test mentioned above, the test value obtained from fewer tests shall be used only as an aid to judgment & as a proof of the quality of the work.

1.8.4 REMOVAL OF SOFT AREAS:

When density measurements reveal any soft areas in the embankment, the Engineer-in-charge shall direct that these areas should be compacted further & nothing extra shall be paid. In spite of that, if the specified compaction is not achieved, the materials in the soft areas shall be directed to be removed & replaced by approved materials, compacted to the satisfaction of the Engineer-in-charge.

1.8.5 COMPACTION IN ORDINARY WAY

The Engineer-in-charge shall indicate the portion of the earthwork which are not required to be compacted to a specified degree of density & moisture content. The embankment in such portion shall be carried out as specified above, each layer being consolidated as far possible with the help of iron rammers, ordinary light rollers or sheep foot roller, if available. The layers shall be laid concave sloping from the edges towards the centre. The earth shall be laid from the sides to the centre& not vice versa. If the earthwork remains suspended for some time & the surface becomes hard, the latter shall be roughened & slightly moisture before resumption of work

without any extra charge to Govt.

9.9 FINISHING OPERATIONS:

9.9.1 After the earthwork is completed & consolidated, sectioning shall be done to bring it to its true final shape. The embankment shall be finished in conformity with the alignment levels, cross sections & dimensions shown on the plans. Where the alignment of the road is in a curve, the tops of the embankment shall be formed with the supervention & the increased widths shown on the drawing or as the Engineer-in-Charge may direct without any extra cost to Govt.

9.9.2 Finishing operation shall include the work of shaping & dressing the shoulders road bed & the side slopes to conform to the typical cross section shown on the plane & shall be paid extra. Both the upper and lower ends of the side slopes shall be rounded off to improve appearance & to merge the embankment with an adjacent terrain.

9.9.3 When the earth work operations have been substantially complete the road way area shall be cleaned of all the debris & ugly scars existing near the coming areas etc. Every reasonable effort shall be made to aviate objectionable appearance without any extra payment.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

PRODUCTION WELL

1. The authority reserves the right to change the Production well site individually or totally or any group of Production wells in case of programme is changed or if there is any dispute in site selection without any reference to the contractor and in such case: no claim whatsoever like expenditure for the idle labour, hire charges etc. shall be entertained from the contractor. The department may cancel the contract, if the contractor does not agree to the proposed changes.

2. The tenderers shall have to ensure engagement of a trained mistry/ driller for the work.

3. The contractor will abide by the fair wages clause as introduced by the Government during execution of work.

4. All works should confirm to ISI/ State PWD/ PHED specification.

5. Mud pits: The volume of the mud pits should be equal to the volume of final drilled bore hole. Two mud pits are to be constructed i,e one settling pit and another suction pit. The settling pit shall be 60% of the volume of the drilled hole and the suction pit should be 40%. Ideally the depth of the pit should be 1 M. Wherever adequate space is not available deeper pits may be executed as per the direction of Engineer-in-Charge. It will be the look-out of the contractor to maintain proper density of the mud for arresting the bore walling during execution.

6. After the work is finished , all surplus materials and debris are to be removed by the contractor and preliminary works such as mud pits, channels , vats, platforms etc, are to be dismantled and all the materials are to be removed from the site . No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.

7. The contractor should arrange at his own cost necessary tools and plants, machines, compressor, pumping sets, welding sets etc and other equipments required for the execution of the work and the rates quoted should be inclusive of the running charges of such tools and plants, machineries and cost of consumables. No hire charges of any materials to be separately paid for by the Department.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

8. After completion of the work the contractor shall arrange at his own cost all requisite equipments for testing of the Production wells. Minimum yield of Production well is to be ***700 ltr/hour.***

9. Approach road to work site wherever necessary shall be made by the contractor at his own cost.

10. It shall be the responsibility of the contractor to keep the finished bore/ Production wells with or without pump installed for testing over it. It will be protected and guarded from vandalism till the entire work assigned to him is completed and measurements thereof recorded in the Department measurement book and handed over to Department. In the event of the bore/ Production well being specified and rendered useless by the children or miscreants or otherwise before handing over to the Department. The contractor shall have to restore it to original condition at his own cost. In case of failure to do so, no payment shall be made to him.

11. After completion of pilot bore the contractor is to keep the bore intact by circulating mode & where the logging team arrives, the contractor withdraw the boring pipes with cutter & keep the bore suitable for the logging at his own cost.

12. The development and washing of the Production well shall be continuously done till clear of sand free water having no smell of drilling mud is obtained .The sample of water is to be checked by Engineer-in-Charge and fact entered in the site order book. The contractor should submit the site order book to the Junior Engineer concerned with all required entries for preparation of final bill. The development of production well is to be done through air compressor only.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SPECIAL CONDITIONS FOR DREDGING WORK

1. The following special conditions of contract shall supplement the general conditions of contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract with regard to execution of dredging works.

2. INSPECTION AND TESTS

(a) The inspection of the works shall be carried out to check whether the work are in conformity with the technical specifications attached to the contract and shall be in line with the Inspection/test procedures laid down in the Schedule of Specifications and the Contract Conditions.

(b) Contractors must provide suitable facilities at their works for carrying out various performance tests.

(c) All tests shall be carried out as per OPWD norms if the same has not been specifically mentioned in the bid documents.

3. INSURANCE

Without limiting his obligations and responsibilities, the Contractor shall prior to the commencement of works insure in the joint names of the employer and the contractor against all loss or damage from whatever cause arising, other than the risks for which he is responsible under the terms of the contract and in such manner that the Employer and Contractor are covered for the period stipulated for loss of damage arising from a cause, occurring prior to the completion of services and for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under the Contract.

(a) The works for the time being executed to the estimated current contract value thereof plus 10% thereon to allow for any additional costs and professional fees resulting from the loss or damage.

(b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.

(c) It shall be the responsibility of the Contractor to notify the insurer of any change in nature and extent of the works and to ensure the adequacy of the insurance cover at all times in accordance with the provisions of this clause.

(d) Such insurance shall provide for compensation to be payable in the types and proportions of currencies needed to cover the loss of damage incurred.

(e) In case the contractor fails to ensure as stipulated above a deduction @ 0.25% of the contract value shall be made from the 1st interim payment made to him. Such shall be effected with an insurer and in terms approved by the Employer, whose approval shall not be unreasonably withheld and the contractor shall whenever, required, produce to the Engineer or the Engineer's representative the policy or policies of insurance and the receipts for payment of the current premiums.

4. PERFORMANCE OF DREDGING WORKS :

(a) Scope of work:

Dredging of **131147.00 Cubic mtrs in tendered work, i.e.** Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre **.**

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

5. METHOD OF EXECUTION

I) The contractor shall arrange dredger of his own or on hire basis (300/350 cutter suction dredger) with manpower, P.O.L., spare parts etc. and shall execute the dredging work as per Bill of Quantity. The contractor shall also maintain the dredger(s) and pipe line including other accessories in good condition during the performance at his own cost.

II) Dredging Plan:

Before commencement of dredging, the dredging plan will be prepared by the contractor in consultation with the Engineer-In-Charge and dredging will be carried out as per this plan. It will be the sole responsibility of the contractor to plan dredging so as to attend widths and depths at various zones of the area as required in the scope of work. However, during the course of dredging due to requirement for any other reasons, if it is so required by the Engineer-In-Charge, the contractor shall undertake dredging in any other location or area in the channels as instructed and no claim of any sort shall be made for deviation from the original dredging plan.

III) Other conditions:

i. A hindrance register is to be maintained by the contractor in which all hindrance due to which work is held up has to be recorded and signed by both parties. The hindrance so recorded will be regularized in accordance with the contract provisions.

ii. In case the progress of progress lags behind the schedule and needs to be accelerated. Engineer-in- Charge shall have discretion to appoint necessary agencies to speed up the work. The expenses incurred under such circumstances shall be reimbursed from the contractors bills to the respective agencies.

iii. All incident items not shown or specified but reasonable implied for necessary successful completion of work shall be provided by the contactor at their own cost.

iv. Security and safe custody of equipments, pipelines and other accessories shall be the contractor's responsibility.

v. There shall be no claim on idle hours of manpower & machineries during or after the work.

vi. After completion of work/part completion, area to be cleared by Agency. It is expected that there will be every chance of getting encounter of materials like wire ropes, gunny bags, fishing nets, rubber tires, cane baskets and all sorts of discarded materials. Bidder should take note of encountering of all such materials during dredging while submitting the bid and the quote shall include removal of all such materials while carrying out dredging.

6. RATE OF OUTPUT

The contractor shall operate the dredgers in one or more shifts and shall deliver a minimum output of **11000.00Cum. per dredger per month**.

7. MEASUREMENT

1 (i) Before starting execution of dredging a joint survey of the level area and the mouth bed as directed by the Engineer-in-charge, shall be made by the contractor and the Engineer-in-charge of work. The level of the ground under water shall be recorded by means of Echo-

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

sounding equipment using proper method. On completion of the surveys, the Engineer-in-charge of work will prepare record/drawing which shall be signed by the contractor and the Engineer-in-charge of work and these drawings shall be used for measurement.

At the beginning and the end of each day levels should be checked by way of sounding and if not as per design section, dredging will again be carried out. Pre and Post dredging survey charts are to be prepared by Contractor.

(ii) Any alternative method of measurement will be acceptable on mutual agreement.

(iii) All the pre-level and post level measurement to be taken by 3rd party agency as directed by Engineer-in-Charge.The Supporting Materials required for measurement to be provided by Executing Agency and only man power support will be provided by 3rd party.

8. DETERMINATION OF LEVELS AFTER DREDGING.

When the dredging has been completed, the area shall be surveyed jointly by the Engineer-in-charge and contractor. The agreed levels obtained shall be recorded on drawing prepared by the Engineer-in-charge and the contractor. Authorized agency hired by the employer will take the measurements if required and payments in this regard will be paid by the employer deducting from the payments to the contractor.

9. LIMITS OF TOLERANCE FOR DREDGING

The dredging shall be done up to the specified levels and tolerance of up to **200 mm** only below the specified levels will be allowed and paid for with horizontal tolerance of 0.3m on both sides.

However, no above the specified level will be allowed.

10. FINAL MEASUREMENT:

The final quantities shall be computed from the agreed drawing recording the original ground and mouth/lake bed levels and the levels after excavation and dredging has been completed. For the purpose of competing the quantity of dredging materials, Simpson's method shall be adopted. The area of sections shall be calculated by Simpsons rule on ordinates spaced not more than 5 meters and the volume using areas of cross sections not more than 30 meters apart. The actual spacing of ordinates for areas and sections for volume to be adopted in each case shall be determined by the Engineer-in-charge of work within the above limits.

11. The work shall be measured net, notwithstanding any general or local custom, except where otherwise specially described or prescribed in the contract.

12. INSPECTION

The Employer and any person authorized by him shall at all times have access to all work sites when dredging work is being carried out or where the spare parts and materials in connection with dredging work are being obtained/store by the contractor. The contractor shall offer every facility & every assistance in/or obtaining the right of entry into such areas.

13. INSPECTION OF SITE :

However, it is for the bidder to collect all the information required for bidding purpose at his own cost and risk. The bidder shall also be deemed to have inspected and examined the site and its surroundings and gathered available information in connection therewith and to have

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

satisfied himself, so far as practicable before submitting his Bid, as to the form and nature thereof including the bed conditions, the hydrographic and climatic conditions, the extent and nature of work and materials necessary for the completion of the works, the means of access to the site and the accommodation he may require and in general shall be deemed to have obtained all necessary information, subject as above mentioned, as to risks contingencies and all other circumstances which may influence or affect his bid . The tenderer will not be responsible for any damage relating to natural calamity if any.

14. WORKS TO BE DONE TO THE SATISFACTION OF THE ENGINEER

Save in so far as it is legally the contractor shall execute and maintain the works in strict accordance with the contract to the satisfaction of the Engineer in charge and shall comply with and adhere strictly to the Engineer's instructions and directions on any matter whether mentioned in the contract or not, touching or concerning the works. The contractor shall take instructions and directions only from the Engineer or from the Engineer's representatives(s).

15. WATCHING AND LIGHTING

The contractor shall in connection with the works provide and maintain at his own cost all lights, guards fencing and watching when and where necessary or required by the Engineer or the Engineer's representative, or by and duly constituted authority, for the protection of the works, or for the safety and convenience of the public or others.

16. SUSPENSION OF WORKS

(1) The contractor, shall on the written order of Engineer, suspend the progress of the works or any part thereof for such time or times an in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work, so far as is necessary in the opinion of the Engineer. The extra cost incurred by the contractor in giving effect to the Engineer's instruction under this Clause shall be borne and paid by the Employer unless such suspension is

(a) Otherwise provided for in the contract, or

(b) Necessary by reason of some default on the part of the contractor, or

(c) Necessary by reason of climatic conditions on the site or

(d) Necessary for the proper execution of the works or

(e) For the safety of the works or any part thereof in so far as such necessity does not arise from any act or default by the Engineer or the Employer or from any of the excepted risks.

Provided that the contractor shall not be entitled recover any such extra cost unless he gives written notice of his intention to claim to the Engineer within twenty eight days of the Engineer's order. The Engineer shall settle and determine such extra payment and / or extension of time to be made to the contractor in respect of such claims shall, in the opinion of the Engineer, be fair and reasonable.

17. CONTRACTOR'S SUPERINTENDENCE AND SUPERVISION

(a) The contractor shall provide all necessary superintendence during the execution of works and as long thereafter as may be necessary for the proper fulfilling of the contractor's obligations under the contract. The contractor or a competent authorized agent or the representative approved in writing by the Engineer, which approval may at any time be withdrawn, is to be constantly on the works and shall give his whole

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

time to the superintendence of the same.

The contractor shall provide and employs sufficient number of qualified men for supervision on all aspects of work.

(1) Only such technical assistants as are skilled and experienced in their respective callings and such sub-agents, foremen and leading hands as are competent to give.

Proper supervision to the work are required to supervise and (ii) Such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution and maintenance of the works.

18. REMOVAL OF CONTRACTOR'S MEN

If approved as per clause 27 shall be withdrawn by the Engineer, the contractor, shall as soon as is practicable, having regard to the requirement of replacing him as hereinafter mentioned, after receiving written notice of such withdrawal, remove the agent from the works and shall not thereafter employ him again on the works in any capacity and shall replace him by another agent approved by the Engineer such authorized agent or the representative shall receive, on behalf of the contractor, directions and instructions from the Engineer or the Engineer's representative.

The Engineer shall be at liberty to object to and require the contractor to remove forthwith from the works any person employed by the contractor in or about the execution or maintenance of the works, who in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the works without the written permission of the Engineer. Any person so remove from the works shall be replaced as soon as possible by a competent substitute approved by the Engineer.

19. PROGRAMME OF WORKS

The programme of dredging shall be carried out by the contractor as approved by the Engineer. The contractor shall commence the works on site within ten (10) days after the receipt by him of a written order to this effect from the Engineer and shall proceed with the same with the expedition and without delay except as may be expressly sanctioned or ordered by the Engineer, or by wholly beyond the contractor's control.

The contractor shall bear all costs and charges for special or temporary way leases required by him in connection with access to the site. The contractor shall also provide at his own cost any additional accommodation outside the site required by him for the purpose of the work.

20. Programme will have be so drawn so as to complete each section of work (specified quantities) as per programme approved by the competent authority/Engineer. Dredged sections shall be handed over as per mutually agreed conditions.

21. DOCUMENTS MUTUALLY EXPLANATORY

Except otherwise stated specifically in this contract, the documents forming the contract shall take precedence in the order in which they are set out in the form of the agreement. Subject to the foregoing, the several documents forming the contract are to be taken as mutually

explanatory of one another, but incase of ambiguities or discrepancies, the same shall be explained and adjusted by the Engineer who shall thereupon issued to the contractor instructions thereon, provided always that if in the opinion of the Engineer, compliance with any such instructions shall involve the contractor in any cost, which by reason or any such ambiguity or discrepancy could not reasonably have been foreseen by the contractor, the Engineer shall certify and the Employer shall pay such additional sum as may be reasonable to cover such cost.

22. SIGNED DRAWINGS AND AUTHORITY TO THE CONTRACTOR

Signed drawings alone shall not be deemed to be an order for work unless they are entered in the agreement or schedule of drawings under proper attestation of the contractor by the Engineer-in-charge with a covering letter confirming that the drawing is an authority for work in the contract.

23. COPIES OF DRAWINGS AND SPECIFICATIONS

Copy of the drawings, any modified or supplementary drawings and the specifications shall furnished free of cost to the contractor.

One copy of the drawings, furnished to the contractor as aforesaid shall be kept by the contractor on the site and the same shall at all reasonable time be available for inspection and use by the Engineer in Charge and the Engineer's representative and by any other person authorized by the Engineer in writing.

a.)The contractor shall given written notice to the Engineer whenever planning of progress of the works is likely to be delayed or disrupted unless any further drawings or order, including direction, instruction or approval is issue by the Engineer within a reasonable time. The notice shall include details of the drawing or order required and of why and when it is required and of any delay or disruption likely to be suffered if it is late.

b.)The Engineer shall have full power and authority to supply to the contractor from time to time, during the progress of the works, such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works. The contractor shall carryout and be bound by the same.

24. PLANS AND DRAWINGS

The contractor shall submit the following information in triplicate to the Engineer-in-charge for approval within the time stipulated against each item below.

Drawing or prints showing the location or major plant and other facilities which he proposes to put up at the site, including any changes in the general layout, at least fourteen days prior to the commencement of the respective work.

25. REFERENCE MARKS AND BENCH MARKS

The basic centre lines, reference points and bench marks will be fixed by the Employer. The contractor shall establish at his cost, at suitable points, additional reference lines and bench makes as may be necessary. The contractor shall remain responsible for the sufficiency and accuracy of all his bench marks and reference lines. He shall take precautions to see that the lines, points and bench marks fixed by the Employer are not disturbed by his worm and shall make good any such damage.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

26. INFORMATION AND DATA

The information and data furnished herein relative to the works and site conditions are general. It shall be the responsibility of the contractor to fully acquaint himself with the nature and the location of works, quarries, local conditions and other aspects which are relevant to the work.

27. USE AND CARE OF SITE.

The contractor will be permitted to use without charge, available with the employer the site and the lands for execution of work, labor, staff, colonies, site offices, workshops or stores and for related activities. The contractor shall not commence any operation on such lands except with the approval of the engineer-in-charge. If these lands are not adequate, the contractor may have to make his own arrangements for additional lands. The contractor shall not demolish, remove or alter the structures, trees or other facilities on the site without prior approval of the Engineer-in-charge.

All the areas of the contractor's operations shall be cleaned before returning them to the employer. The contractor shall make good any damage or alterations made to area, property or land handed over to him before these are returned.

28. PROTECTION OF ADJOINING PREMISES

The contractor shall protect adjoining sites against structural, decorative and other damages that could be caused by the execution of these works and make good at his cost, any such changes.

29. ENGINEER-IN-CHARGE'S DECISION

It shall be accepted as an inseparable part of the contract that in maters regarding materials, workmanship, removal of improper works, interpretation of the contract drawing and contract specification , mode or procedure of carrying out of the work the decision of the Engineer-in-charge which shall be given in writing, shall be binding on the contractor.

The Engineer-in-charge's authority applies to technical considerations an does not include decisions regarding sums due to or from the contractor or extension of time.

30. OTHER CONTRACTORS

When two or more contractors are engaged on work in the same vicinity, they shall work together in a spirit of co-operations and accommodation. In case of any difficulties amongst the contractors the Engineer-in-charge shall direct the manner in which each contractor shall conduct his work so far as it affects the others.

31. OTHER WORKMEN

The Engineer-in-charge shall have full authority to depute other workmen on the work site to execute other works not included in the contract.

32. ALTERATIONS, ADDITIONS AND OMISSIONS

Variations: Variations in the Dredging quantities of works in the Bill of quantities shall not vitiate the contract. Should quantities of works actually involved under any item exceed quantities provided in the tender by more than thirty percent, the rate of such excess over thirty percent of quantity provided in the tender will be mutually agreed one. The payment for the item will continue to be made at the original rate until the revised rate is decided. Provided also that the contractor shall be under no obligation to execute any variation which cannot be

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

executed by the dredging equipment being supplied under the contract.

33. RECOVERIES

Recoveries due from contractors advised by then Govt. shall be recovered from any bill or money retained from this contract.

34. RELEASE OF CLAIM:

After completion of work and prior to final payment, the contractor shall furnish to the Engineer-in-charge a release of claim against the Employer arising out of the contract, other than claims specifically identified, evaluated and exempted from the operation of this clause by the contractor.

35. LABOUR

The contractor shall not employ in connection with the works any person who has not completed his eighteenth year of age.The contractor should be submitted labour and EPF/ESI licence from appropriate authority during sign of the agreement.

36. The contractor shall furnish to the Engineer-in-charge information on the various categories of labour employed by him in the form and at such intervals as may be specified.

37. The contractor shall in respect of labor employed by him comply with or cause to be complied with the provisions of the various labour laws and rules and regulations as applicable to them in regard to all matters provided therein and shall indemnify the employer in respect of all claims that may be made against the Employer for non-compliance thereof by the contractor.

38. Notwithstanding anything contained herein, the Engineer-in-charge may take such actions as may be necessary for compliance of the various labour laws and recover the costs thereof from the contractor.

39. In the event of the contractor committing a default or breach of any of the provisions of the labour laws and rules and regulations as applicable, the contractor shall without prejudice to any other liability under the acts pay to Employer a sum not exceeding rupees one hundred per day for each day of default subject to a maximum of one percent of the contract amount.

40. SAFETY PROVISIONS

The contractor shall arrange for the safety in his operation as required including the provisions in the safety manual published by the Central Water & Power Commission, New Delhi (January 1962 edition). In case the contractor fails to make such arrangements, the Engineer-in-charge shall be entitled to cause them to be provided and to recover the cost thereof from the contractor.

For failure to comply with the provisions of the safety manual the contractor shall without prejudice to any other liability, pay to Employer a sum not exceeding Rupees one hundred per day for each day of default.

41. TAXATION

Income Tax – Deductions will be made from bill towards Income-tax at source by the Employer as directed by Income-tax department.

42. BRIBERY AND COLLUSION

The Employer shall be entitled to terminate the contract and recover from the contractor the amount of any loss resulting from such termination if the contractor shall have offered or given

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

to any person any gift or consideration of any kind as an inducement or regard for doing, or for agreeing to do, any action in relation to obtaining, or in the execution of the contract or any other contract with the Employer for showing favor to any person in relation to the contract or any other contract with the Employer, or if any of the like acts shall have been done by any person employed by the contractor or acting on his behalf (whether with or without the knowledge of the contractor) , or if the contractor or number of contractors whereby an agreed quotation or materials shall be offered as a bid to the employer by one or more Contractors.

43. It will be the exclusive responsibility of the contractor to provide Drinking Water supply to their staff at site of work.

44. In case power supply is required at work site or at his camp office, staff colony etc., they may avail it by directly making necessary agreement with Electricity supply agency and pay the charges thereof, at their own cost and risk. However, official assistance if any required will be rendered by the Employer, at the request of the contractor.

45. Preparatory Works

A. Setting Out

The Contractor shall do setting out of the Works on such dates as to permit timely commencement of the work. The Contractor shall furnish, install and maintain all markers, buoys, shore beacons and other items necessary to define the Works and facilitate the inspection and measurement thereof. It shall be the responsibility of the Contractor to obtain all licenses, permits and permissions for the use of marine radios, walkie-talkies, radio positioning systems, satellite phones for the placing of onshore, offshore and underwater beacons and marker buoys, and for giving the proper statutory notices for all maritime operators. The costs of such licenses, permits and notices are to be borne by the Contractor, and shall be deemed to be covered by the rates and prices quoted in the Tender. Engineer will extend every feasible assistance to Contractor to obtain and renew such permissions required from statutory authorities. The Contractor, with the Engineer's Representative in attendance, shall execute the setting out of the Works under Contract.

B. Checking of setting out : -

The Contractor shall provide the Engineer's Representative with sufficient equipment, duly calibrated in the field, labour and materials to enable the Engineer's Representative to check the Contractor's setting out, at any time the Engineer's Representative may reasonably direct.

C. Survey Charts and Scale of Survey Charts :

The survey charts to be produced by the Contractor shall be reduced to a water level as directed by the EIC. Some charts may also have to be prepared without any reduction. Decision of EIC in this regards shall be final. The charts are to be prepared in 1:500 scale for Pre / Post dredging surveys and 1:5000 scale for River disposal surveys and presented to the Engineer in 120 gsm good quality paper (5 copies) and also in soft copy form in CD / DVD (2 sets). Furthermore, the charts shall incorporate all reference points, buoys, beacons, markers, gauges and benchmarks, together with the location and nature of obstructions, structures and facilities. Particular items of interest shall also be indicated on the Charts. The survey is required to be referred to WGS-84 datum and the fair sheet is to be plotted on Universal transverse Mercator projection (UTM). Contours are to be indicated on the chart. All prominent shore features and other conspicuous

objects are to be fixed and indicated on the chart. 137 Hydrographic Surveys Working Methods Soundings are to be done using Automated Hydrographic Survey logging System of any accredited/ IHO approved hydrographic survey software. Digital echo sounder (having accuracy of not less than 0.1 m) shall be used for sounding purpose and Differential Global Positioning System (DGPS) / RTKS DGPS (having not less than sub-metre accuracy) shall be used for position fixing. These surveys shall only be carried out if weather and river conditions, condition of equipment and methods of execution and interpretation are, in the opinion of the Engineer, satisfactory for this purpose. The Engineer's Representative may resolve to check echo soundings by means of other methods to measure water depths, such as sounding poles, bar check or lead lines. The Engineers Representative may also order calibration checks of the equipment as and when considered necessary. The Contractor shall cooperate in this respect and supply any manpower, boats and equipment that may be reasonably required for this verification.

The Current velocity at every shoal (i.e. at least 3 locations, Starting / Middle / End of the survey area) at 1 m depth from the surface and 1 m above bed level shall be carried out once during the survey period. The Float Observation at every shoal (i.e. 3 tracks are to be observed, one on both the side and one at middle of the channel of the survey area) shall be carried out once during the survey period. Water and Bottom samples are to be collected at two locations (one at the Downstream and other at Upstream of the shoal area) and get it tested for finding the characteristics of the soil and the water. Calibration of Sounding Equipment Echo sounding equipment shall be checked and calibrated daily before and after use, by means of a bar or plate suspended at known distances below the water surface. Checking shall be performed at the actual location of the survey and the Engineer's Representative may require additional checks during surveying. Adjustments to the recordings / readings taken shall be made accordingly. Records of bar checks shall be performed at starting and ending of the day"s survey work. The echo sounder should maintain a repeatable accuracy of better than 10 cm. Field books All field books, calculations, maps, original records, survey tracks, as-run plots, soft copies of soundings with positions (raw data as well as edited / sorted data), soft copy of water level / tidal data etc. of all survey activities shall be kept on site available for the Engineer's Representative's study or checking for the duration of the Contract. Soft copies of Sounding with Positions (Raw, Edit, Sort) Water level / Tidal data, Levelling, Calculations, 138 Charts etc. pertaining to that particular activity / survey work are to be copied in CD / DVD form (2 sets) and submitted to Engineer on completion of field work. Accuracy of surveys The accuracy of surveys in the horizontal plane, related to the relevant benchmarks for the project should be within 1.0 m. The accuracy of surveys in the vertical plane includes the echo sounder which should maintain a repeatable accuracy of better than 10 cm for measurements of distances between riverbed and survey vessel waterline. - The registration of water levels by means of automatic water level gauges which should be within 5 cm. wherever erection of automatic water level gauge is not found feasible, manual water level gauge shall be erected with prior approval of Engineers representative. The water level plane between the tide gauges and the survey location can be assumed horizontal. Survey lines on consecutive surveys should be sailed in the same direction. Measurement of Water levels Water Level Gauges The Contractor shall install and maintain

suitable automatic water level gauge at an approved location close to the Works. This gauge shall be placed and calibrated at least 30 days before commencement of the construction of the Works. The water level gauge should be connected to an established bench mark (30 cm x 30 cm RCC pillar with 30 cm height above ground level) to be erected in the vicinity (within 5 km of the dredging site) by the Contractor, which should be having Reduced Level (RL) with respect to Mean Sea Level (MSL) and Geo Co-ordinates. The RL should be established by transfer of level from a known GTS bench mark by proper levelling. The zero of the established gauge is to be connected w.r.to MSL by proper levelling. Cost of construction of Bench mark, Levelling, Erection of Automatic Water Level gauge and collection of Gauge Readings are to be borne by the Contractor. During Echo sounding, water levels shall be recorded continuously. Reduction of sounded depth The Contractor shall place special stress on the accurate reduction of sounded depth in relation to the prevailing water levels, by adopting standard procedure.

D) Pre-Dredging Survey :

The Contractor, with the Engineer's Representative in attendance, shall survey the following areas and commence dredging work as per Engineer-in- charge directives. The shoal(s) to be dredged shall be informed to the Contractor by Engineer- in- Charge (EIC) or his representative in writing based on the identification of such locations through fortnightly Thalweg surveys, report from waterway users or any other inputs received by the EIC. The material to be dredged is sand, silt, soft clay or a mixture of these materials, compact and sedimented clay or sand or any other material deposited on the river/channel If the dredger meets any strata such as boulders, ropes, sand stone, stone debris, wooden logs etc., such patches will also be continued to be tackled with a modified cutter or cutter teeth like serrated etc. capable for dredging such materials.

E) Survey vessel & equipment required :

For surveys, boat shall be provided by the contractor if required. The survey vessel shall be of sufficient size and stability to safely and properly carry out the survey work under the prevailing site conditions having good maneuverability, even at low speeds of 1 to 2 knots. There should be ample space for instruments, recorders, etc. Day accommodation for two staffs of the Engineer-in-Charge, besides the normal crew and Contractor's representative. A helmsman experienced in survey work, adequate communication between all persons concerned in the surveys to be arranged. Facility for operation of Automated Hydrographic Survey System (AHSS).

F. Channel marking

i) The responsibility of the contract includes erection, supervision, safe keeping, re- erection and maintenance of the channel marks and other allied works and the provision of all labour, materials, mechanized boats, temporary works and everything whether of a temporary or permanent nature required for safe navigation as specified or reasonably to be inferred from the contract.

ii) For marking the channel, the material used shall be bamboos, bamboo strips, bamboo mats, coir string, straw, lime, etc., the materials and other tools and plants as may be required are to be arranged at different sectors at contractor's own cost.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

iii)The contractor shall at his risk and cost, make all arrangements for locating the navigable channels, sand churs, snags, etc., by means of regular soundings along the channel and change the position of the marks to indicate the navigable channel by the end users during operating in the stretch.

iv) All the marks termed as right hand marks, left hand marks, channel closing marks and snags (for lean season) and right hand transit mark and left hand transit mark (for flood season) are of variable nature and this can be determined only after conducting the survey in the field. In case of additional requirement of marks, the contractor shall erect the same without additional cost. vi) The contractor shall be liable to bear the expenditure of all manpower, material and equipment required for the work at his cost. He must, therefore, have thorough knowledge about the work prior to submission of his rates in the bid. No extra claim in this regard shall be entertained once the contract has been awarded. The marks shall be maintained during the entire contract period. The material used for channel marking thereafter shall have to be removed by the contractor at his risk & cost.

vii) The materials used on the work shall be of good quality conforming to the specifications laid in the contract. The work shall be carried out in a workman like and expeditious manner and the quality of work at each stage shall be monitored by the Engineer-in-Charge or its representatives. The Engineer-in-Charge decision as to the quality of such materials and work shall be final and binding on the contractor.

viii) The contractor shall bear full responsibility for the intimation to the Engineer-in- Charge forthwith of any accident and take all necessary action required under relevant Acts and Rules etc., as the case may be. The contractor shall also report such accidents to the Competent Authority wherever such reports are required under rules. The Engineer-in-Charge or his representative must however, be informed immediately in the event of any marine accident. The contractor should also bear full responsibility for all accident, damages or injury caused to officials, cause of which is established as due to contractor's carelessness or negligence.

G) Permanent marks on the Banks of Channel:-

The Contractor shall provide Bench Marks at 500m intervals on both sides of channel either or the Permanent structures available and on Cement Concrete, Bench Mark of 1' X 1' X 3' size protruding one foot above NSL.

Following points are to be followed during dredging of Nallas/ Drainage Channels/ Rivers:

1. Work programme and work schedule with specification of dredger to be deployed is to be provided by the agency as per stipulation in the agreement.
2. Demarcation of the Nallas/ Rivers will be done prior to commencement of dredging.
3. The channel for dredging will be laid out by putting markers at suitable intervals not more than 30m.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

4. a) Dredging operation will be taken up in such a way that the toe of the slope will be at least a berm width of 'H' to be provided on each side, H being height of NSL from existing bed level which should be less than 3m.

   b) Subsequent berm if necessary, are required to be provided in case of deep channels to avoid any failure of slope post dredging.
5. The pre -measurement of the dumping sites will be taken to have an assessment of volume dredged.
6. During course of dredging, levels will be checked on alternate days by the field Engineers and clearance is to be given for further dredging.
7. Dredging beyond the specified limits will not be accounted for payment and the agency will be asked to make good at its own cost. If dredging is done beyond the specified limits near junction of the slope / bed the dumping area is to be managed in such a way that height of dumping should not be more than 2m.
8. Log Book of the dredger will be checked by the field engineers during each site visit.
9. All safety regulations as per provisions in the agreement and as required at site shall be taken up by the agency.
10. a) Locations of area for dumping of dredged soil is to be provided by the agency in consultation with local people and officials of Department.

    b) Field Engineers (Junior Engineer/ Assistant Engineer/ Assistant Executive Engineer) shall make field visit to dumping sites before commencement of work.
11. The agency is to ensure area preparation for dumping as per provision in agreement.
12. Generally, flood plain will be avoided for disposal of dredged soil. In case of exigency, the flood plain may be considered for dumping only with approval of Superintending Engineer/ Executive Engineer with adequate measures for minimal erosion.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION – 7

DRAWINGS CAN BE SEEN IN OFFICE OF THE EXECUTIVE ENGINEER, DRAINAGE DIVISION, KHORDHA DURING OFFICE HOURS

(FROM 16.10.2026 TO 03.11.2026)

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION-8

FORMS

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

CHECK LIST

SL. NO.	DOCUMENTS	SUBMITTED OR NOT
1.	Form A No relation Certificate	Yes/No
2.	Form B Structure and Organization	
3.	Form C Financial Statement	Yes/No
	a.Balance sheet and profit and loss statement of last five years	Yes/No
4.	Form D Format for performance record of contractors	Yes/No
5.	Form E Work in Hand	
6.	Form F Details of other works tendered for and works in hand on the Date of submission of the tender	Yes/No
7.	Form G AFFIDAVIT	Yes/No
8.	Form H AFFIDAVIT (For Engineering Contractor**)**	Yes/No
9.	Form I Details of similar type and magnitude carried on by the contractor in the past	Yes/ No
10.	Other documentary evidence as required in minimum pre-qualification criteria.Valid GST, valid License, no relation certificatepaper cost EMD detailsetc	Yes /No

Signature of Contractor

NOTE: -Checklist and required forms with supporting documents if any to be uploaded/submitted. Failing which the tender will be rejected.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – A

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 / Under Secretary and above.

CONTRACTOR

(OR)
RELATIONSHIP DECLARATION

List of Relatives of the tender serving in Water Resources Department.

Sl No.	Name of the relatives	Rank	Place of present posting with office / Division / Department
1	2	3	4

1.
2.
3.
4.
5.

CONTRACTOR

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – B

STRUCTURE AND ORGANISATION

1.Name of Tenderer ……...

2.Nationality of Tenderer ……....

3.Office Address ……...

4.Telegraphic Address …….

Telephone/ FaxNo ……

Mobile No ……

Telex Number/ e-mail ID ……

5. Location of establishment ……

And from date

6. The tenderer is

a. An individual

b. A proprietary firm.

c. A limited company or limited corporation

d. A member of a group of companies (If yes, give names, address and present description of other companies.)

e. A subsidiary of large organization

(If yes, give names, address of the present organization)

f. If the company is subsidiary, state what involvement if any, will the parent company have in the project.

Attach the organization chart showing the structure of the organization including the names of the Directors position of officer.

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

7. Number of years of experience

a. As a prime contractor

I. In own country

II. Other country (specify country)

b. In a Joint venture

I. In own country

II. Other country (specify country)

8. Name & the address of any associates that the tenderer has in India, who are knowledgeable in the procedure of customs, immigration etc. and other information necessary to do work.

9. How many years has your organization been in business under your present name? Add what were your fields were initially and when you established your organization. When did you add new field (if any)?

10. Have you ever required for suspending construction for a period of more than six months continuously after you started? If so, give the names of project and reason for suspension or failure.

11. Have you ever not completed any work awarded to you? If so give name of project and reasons for not completing the work.

12 In how many projects you have been imposed with penalties for delay? Please give name of the projects and detail reasons.

13 In which fields of Civil Engineering construction do you claim specialization and interest.

14 Give details of your experience in modern concreting / Earth work and quality control.

15 Give details of your material testing laboratory.

Signature of Contractor

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM-C

FINANCIAL STATEMENT

1. Name of Firm/ Contractor.

2. Name of partner /Directors

3. Capital

   a. Authorized

   b. Issued and paid-up

4.a. Details of the work completed and bidder's performance record for last three years.

(Vide Anexure-A)

b. Details of work on hand and bidder's performance record for last five years.

(Vide Anexure-B)

5. Furnish **Balance sheet and profit & loss statement** with auditor's reports for the **Last five years**, it should include the following information.

   i Working capital

   ii foreign investment.

   iii a. Turnover for 2021-2022

   b. Turnover for 2022-2023

   c. Turnover for 2023-2024

   d. Turnover for 2024-2025

   e. Turnover for 2025-2026

   iv Gross income

   a. Turnover for 2021-2022

   b. Turnover for 2022-2023

   c. Turnover for 2023-2024

   d. Turnover for 2024-2025

   e. Turnover for 2025-2026

   Total liabilities

   Current ratio

   a. Current assets to current liabilities

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

b. Total liabilities to net worth.

6 What is the maximum annual value of work that you can handle?

7 Have you ever been denied tendering facilities by any Government Department/ Public sector undertaking? (Give details)

8 List your sources of finance

a. Own resources

b. Bank credit.

c. Other sources-specify, if any?

9 Certificate of financial soundness by Bank (To be signed by the Senior Manager of a Nationalized Bank)

10 Name and address of Bank from whom reference can be obtained.

Name :

Address :

Telephone No:

Fax No :

11 Have you ever been declared bankrupt?

(If yes, please give details)

Signature of Contractor

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – D

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 **(Year wise break up to be furnished)** :

Sl. No.	Jobs executed	Agreement amount	Date of Commencement	Stipulated Date of Completion/ Actual date of completion	Whether work is executed as per the programme	Reasons for delay, if any
1	2	3	4	5	6	7

7. Whether the quality of construction is satisfactory:
8. Whether he has capability to make good the loss in time :
9. Whether the Contractor has abandoned any work in the past three years, if yes, the details thereof.
10. 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

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – E

Details of the **works in hand** and performance for last five years as on the date of submission of this document in the following proforma.

(Separate sheet 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.
   v. Explain for non-completion of work within stipulated time limit if so.

6. Were there any penalties /fines / stop notice / compensation /liquidated damages imposed?
   Yes or No.
   If yes, give amount and explanations

7.Were there any fines, claims or stop notice filed by the employer?
(Yes or No.)
(If yes, give amount and explanation)

Signature of Contractor

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM-F

DETAILS OF OTHER WORKS TENDERRED FOR AND WORKS IN HAND ON THE DATE OF SUBMISSION OF THE TENDER

Sl No.	Name of works with No. & Date of agreement & Division / Dept. concerned	Place & Country	Work in Hand			Work Tendered for			Remarks
			Tendered cost	Cost of work remaining to be executed	Anticipated date of completion	Amount put to Tender	Date when decision is expected	Stipulated date & period of completion	
1	2	3	4	5	6	7	8	9	10

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – G

AFFIDAVIT

I, Sri……..……Aged……..years, Son/ Daughter / Wife of Sri……..…at present residing At……. , P.O…….. P.S…….. Dist…… Pin……. (State &Country) do here by solemnly affirm as follows.

(i) That, I / We possess a valid license for execution of works contract issued by *……... belongs to ……Class & is valid up to **…….

I am submitting tenders before the Executive Engineer, Drainage Division, Khordha, Odisha for the work **"**Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre**"** in response to **e-procurement notice no**. **CE-DR-CTC-06/2026-27 vide Bid Identification No. CE-DR-CTC/DD-KHR–06/2026-27.**

I am the authorized signatory on behalf of the contractor for the tender for the work mentioned above.

a. I am swearing this affidavit that all tender documents and accompanying papers those being submitted by me before the Executive Engineer, Drainage Division, Khordha, Dist-Khordha, Odisha including E.M.D/ Bid Security in any shape are all authentic and Bonafide documents in the eyes of the law of the land. That the facts stated in the affidavit are true to the best of my knowledge and belief.

Signature of Contractor /
Authorized Signatory

Note:

*Mention the license issuing authority.

* *Mention the date up to which the license is valid

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM – H
AFFIDAVIT (For Engineering Contractor)

I, Sri…….Aged……..years,Son/ Daughter/ Wife of Sri……..……..at present residing At……..,
P.O……..P.S……..Dist……Pin……. (State &Country) do here by solemnly affirm as follows.

(i) That, I / We possess a valid license for execution of works contract issued by*…….. belongs to "A" Class Degree Engineering Contractor & is valid up to **…… .

I am submitting tenders before the Executive Engineer, Drainage Division, Khordha, Odisha for the work **"**Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre**"** in response to **e-procurement notice no**. **CE-DR-CTC-06/2026-27 vide Bid Identification No. CE-DR-CTC/DD-KHR–06/2026-27.**

I am the authorized signatory on behalf of the contractor for the tender for the work mentioned above.

(ii) That, I being Degree Holder Contractor, I am entitled to avail exemption of EMD as per Govt. works Department Order No.19078/dated 02.09.1969 and 14538/dated 09.06.1987 EMD & ISD is 100% exempted to which I am entitled to avail in this tender as I am not yet availed the facility for more than two works during the current financial Year.

(iii) I am swearing this affidavit that all tender documents and accompanying papers those being submitted by me before the Executive Engineer, Drainage Division, Khordha, Dist-Khordha, Odisha including E.M.D/ Bid Security in any shape are all authentic and Bonafide documents in the eyes of the law of the land.

(iv) That I am 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 and above.

(v) That the facts stated in the affidavit are true to the best of my knowledge and belief.

Signature of Contractor /
Authorized Signatory

Note : *Mention the license issuing authority.
*Mention the date up to which the license is valid

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

FORM-I

DETAILS OF WORK OF SIMILAR TYPE AND MAGNITUDE CARRIED ON BY THE CONTRACTOR IN THE PAST

Sl No.	Name of works with No. & Date of agreement & Division / Deptt. Concerned	Place & Country	Tendered cost	Final cost of completion	Stipulated period of completion	Period of actual completion	Principal Features
1	2	3	4	5	6	7	8

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

SECTION-9

BILL OF QUANTITIES

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

GOVERNMENT OF ODISHA
DEPARTMENT OF WATER RESOURCES

E- Procurement Notice No. CE-DR-CTC-06/2026-27

BID IDENTIFICATION NO.

CE–DR–CTC/DD-KHR- 06/2026-27

TENDER DOCUMENT
(PRICE BID)
(COVER-II)

FOR THE WORK

Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre .

CHIEF ENGINEER,
DRAINAGE, KATAKA

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

TENDER INVITING AUTHORITY: CHIEF ENGINEER, DRAINAGE.

NAME OFWORK : Augmentation of regular water supply to water bodies inside Bharatpur reserve forest and regional plant resource centre.

BID IDENTIFICATION NO. : CE-DR-CTC/DD-KHR–06/2026-27

BILL OF QUANTITY

It. No.	Description	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
1	Desiltation by dredging from river / nallah for depths varying from 1.00 m to 3.00m including fixing of pipelines, floaters and floating pipelines for disposing of water slurry consisting silt and sand etc upto a distance of 1500m. The rate shall include the cost of labour, materials, consumables, POL, spare parts and accessories required to keep dredger in, running condition, maintenance of dredgers, T&P etc including building in the island by providing geo tubes and accessories or by tin sheets for formation of bund for dumping of dredged material with all lead and lift including all taxes etc.and excluding GST as per the direction of the Engineering -- in -charge. The job includes all pre and post dredging surveys for payment purpose. The area of disposal of dredged materials should be arranged by the agency at his own cost, own risk and responsibility, Govt. land is to be taken into first priority.	One Cum	131146.95	243.00	31868708.85
2	Earth work in excavation in all kinds of soil on river or drain beds and slopes etc by mechanical means loading in to and transportation by mechanical means and unloading the earth within 5km. lead on embankments or spoil banks including spreading and levelling in 22.50cm layers with all cost of labour, supervision charges, materials, T&P and machineries , royality of the earth, labour cess, taxes etc. if any with all leads, lifts and de-lifts with all cost of incidental charges to work including all taxes and excluding GST as per drawing and specification etc. complete as directed by the Engineer-in-Charge.(measurements to be taken on finished level section.)	One Cum	290228.02	210.20	61005929.80
3	Excavation of drains/ canals to proper profile manually in all kinds of soil including moorum, stoney earth, gravel, etc excepting all kinds of rock and boulders exceeding 0.014 cum in volume for base stripping, cut off tenches, outfall drains and stripping borrow area with all leads and lifts including dressing and leveling the bed to proper slope and level and making it fit for laying concrete and depositing the excavated materials clear of work site with all	One Cum	14633.06	259.90	3803132.29

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

	leads and lifts etc including dewatering from foundation if necessary etc with supply of all labour and T&P required for the work as per drawing and specification etc. including all taxes and excluding GST complete as directed by the Engineer-in-Charge.				
4	Excavation of foundation for structure to proper profile in all kinds of soil including moorum, stoney earth, gravel, etc excepting all kinds of rock and boulders exceeding 0.014 cum in volume for base stripping, cut off trenches, outfall drains and stripping borrow area with all leads and lifts including dressing and leveling the bed to proper slope and level and making it fit for laying concrete and depositing the excavated materials clear of work site with all leads and lifts etc including dewatering from foundation if necessary etc with supply of all labour and T&P required for the work including all taxes and excluding GST complete as directed by the Engineer-in-Charge.	One Cum	2189.16	311.80	682580.09
5	Random rubble hard granite stone masonry in sand grouted in foundation and plinth with hard granite stone 30cm and above size and sand grouting (as per Design and Drawing) including cost, conveyance, royalty, all labour, cess, from approved quarry of approved quality of uniform color and texture with all leads, lifts, delift, handling and re-handling with cost of labour charges and other incidentals charges and royalty etc. complete and as per Technical Specification required to complete the work and quality control testing charges including all taxes and excluding GST etc. complete the Engineer in charge	One Cum	90.00	4367.60	393084.00
6	Providing Cement Concrete M15 grade using 40mm and down graded crusher broken hard granite stone aggregates of approved quality quarried, free from weathered skin, quarry debris and foreign materials, using clean and sharp sand of approved grading and quality confirming to the design specifications including hoisting & lowering to all heights, watering & dewatering, laying the concrete in position to proper slope and level, compacting in layers with vibrators and finishing the exposed surface smooth, curing for required time, providing beads and grooves including cost, conveyance, royalty and other taxes of all materials, with all cost of tools and plant, cost and carriage of water etc, with supply of all labour and supervision Charges including mobilisation & de-mobilisation of men & machineries, T&P with all incidental Charges required for the work excluding GST etc. complete in all respect as directed by the	One Cum	152.16	6169.60	938766.34

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

	Engineer-in-Charge.				
7	Providing Cement Concrete M25 grade for RCC works on approved surface or shape and size using 20mm and down graded crusher broken hard granite stone aggregates of approved quality quarried, free from weathered skin, quarry debris and foreign materials, clean and sharp sand of approved grading and quality confirming to the design specifications including hoisting & lowering to all heights, watering & dewatering, laying the concrete in position to proper slope and level, compacting in layers with vibrators and finishing the exposed surface smooth, curing for required time, providing beads and grooves including cost, conveyance, royalty and other taxes of all materials, (excluding cost of M.S. rod, carriage and labour for cutting, bending, binding and fixing of M.S. rod) with all cost of tools and plant, cost and carriage of water etc, with supply of all labour and supervision charges including mobilisation & demobilisation of machineries, T&P with all incidental charges required for the work excluding GST complete in all respect as directed by the Engineer-in-charge.	One Cum	261.15	7351.60	1919870.34
8	P.C.C M-20 with crusher broken hard granite 20 mm down graded of approved quality mixing by concrete mixer and placing manually, compacting with vibrator including cost, conveyance, cess, taxes of all materials and labour charges for placement within the approved surface vibrating concrete excluding GST complete as directed by the Engineer-in-Charge.	One Cum	215.08	6942.80	1493257.42
9	Providing Formwork for concrete With F 1 finish for Up stream faces of dam ,spillway , glacis of Barrages, unexposed surface of foundation, block joints etc. with steel shutters rigidly fixed and removal of forms and making good to the surfaces where necessary complete with all labour cost ,materials, cess and T&P excluding GST complete as directed by the engineer in charge .	One Sqm	1206.72	935.35	1128705.55
10	Providing HYSD bars confirming to grade Fe 500 of steel and approved quality including labour charges for straightening, cutting, bending, binding lapping, welding, etc. & conforming to IS specification and tying the grills and placing in position with ties, charges and spacers including lapping by binding wires / welding wherever necessary and fixing of reinforcement for RCC works as per the approved design with all leads, lifts and de-lifts from bending yard to placement spot including	One Qntl	287.26	8969.70	2576636.02

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

	cost, quality control testing charge and conveyance of HYSD bars and binding wire of 18 to 20 gauge including cost of all labour, T & P and supervision charges, Labour Cess & including all taxes and excluding GST etc. complete as per design, drawing, specification and direction of the Engineer – in – Charge. (Standard co-efficient of different sizes of steel shall be considered for payment & welding and lapping shall confirm to relevant clause of IS code).				
11	Laying and fixing in position 1200mm dia NP3 RCC spun pipes with collar joints and Cement mortar (1:3) complete including cost of spun pipes and all taxes excluding GST complete as directed by the Engineer in charge .	One Rmt	60.00	9287.10	557226.00
12	Providing Weep hole 100mm dia A.C. pipe in R.C.C. retaining wall extending through the full width of structure with slope of IV: 20H towards drawing force etc. complete as per drawing and technical specification including cost, conveyance, royalty, Labour Cess, including all taxes and excluding GST complete as per direction of the Engineer-in-charge.	One Rmt	72.00	111.40	8020.80
13	Filling foundation and plinth with excavated materials including watering and ramming including cost, royalty and conveyance of all materilas and excluding GST complete as per direction of the Engineer-in-charge.	One Cum	927.16	207.90	192756.56
14	Providing Rough stone dry packing in appron and revetments with hard stone boulder size 15 cm to 30 cm size in any direction free from weathered skin surface to proper line and level including filling the interstices with required broken stone spalls with all leads, lifts and delifts including cost, carriage, royality, taxes of all materials and cost of labour and T&P for dressing of earth work in bed and slopes & trimming to the required profile including dewatering if required etc. complete with all general and incidental charges as per drawing, design and excluding GST complete as per direction of the Engineer-in-charge.	One Cum	42.48	2874.00	122087.52
15	Supplying, driving and fixing z type sheet piles including hire and running charges of driving machine and labour charges with inter locking sheet piles including cost, conveyance, Labour cess, loading and unloading of sheet piles to work site including welding where necessary to form watertight cut off including all taxes and excluding GST complete etc as per direction of Engineer-in-charge.	One Sqm	180.00	10601.00	1908180.00
16	Supplying all labour drilling a perfectly vertical bore hole of specified dia for a specified depth below ground level in alluvial soil strata by mud rotary rig drilling as required to suit the	One Rmt	2500.00	1776.70	4441750.00

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

	site condition as per the direction of the Engineer in charge, including supply of rig with its accessories, tools and plants and all consumables etc. for a finished bore suitable for lowering of 200mm dia G.I/M.S/PVC pipes for housing fitted with socket and with or without wall screen as per the necessity for soft medium, hard and boulder formations including lowering and withdrawing of casing pipes after drilling 200mm to 400mm dia in over burden portion. (0 m to 100 m) including all taxes excluding GST complete etc as per direction of Engineer-in-charge.				
17	Supplying all labour & T&P for lowering the following sizes of G.I/P.V.C casing pipes with or without slotted pipes as per the necessary from the ground level and fitted and fixed up in perfectly vertical position including cutting and threading of pipes and slotted pipes and supplying and fixing of all jointing materials extra sockets, T&P etc. all complete and keeping the top of the casing pipe threaded incluidng plugging the tubewell to prevent entry of foreign materials from above excluding cost of fittings and jointing materials.(Lowering of 200 mm dia G.I/PVC Caing pipe.(100 mtr each bore) including all taxes excluding GST complete etc as per direction of Engineer-in-charge.	One Rmt	2500.00	118.40	296000.00
18	Supplying all labour materials & T&P for packing the bore with washed gravels (P-6) around the pipe in good quality excluding cost of gravel etc including all taxes excluding GST complete as per direction of Engineer-in-charge . (8.19 cum per bore well)	One Cum	82.50	3411.09	281414.93
19	Supplying all labour T&P and grouting with cement slurry for sanitary sealing around the G.I/PVC casing pipes up to 3.00 m below ground level including cost of cement all complete including all taxes excluding GST complete as per direction of Engineer-in-charge .	Each	25.00	4046.50	101162.50
20	Cleaning and developing the production well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply and use of all necessary equipment and labour including all taxes excluding GST complete as per direction of Engineer-in-charge .	Each	25.00	30551.30	763782.50
21	Supplying Labour T&P and jointing materials and lowering the 300 mm dia top PVC casing pipes in position and removing the same after use including all taxes excluding GST complete as per direction of Engineer-in-charge .	Each	25.00	1572.38	39309.50

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA

22	Supplying all labour, material and fitting fixing of Nipple including all taxes excluding GST complete as per direction of Engineer-in-charge .	No	25.00	2500.00	62500.00
23	Supplying all labour, material and fitting fixing of Bore cover including all taxes excluding GST complete as per direction of Engineer-in-charge .	No	25.00	734.00	18350.00
24	Supplying all labour, material and fitting fixing of Bell plug including all taxes excluding GST complete as per direction of Engineer-in-charge .	No	25.00	980.00	24500.00
25	Supplying of all material of required specifications including cost, carriage , all taxes excluding GST complete as per direction of Engineer-in-charge .				
i)	Cost of 200 mm ND PVC Casing pipe.(70 m for each bore)	One Rmt	2500.00	2660.37	6650925.00
ii)	Cost of 200 mm ND PVC Stainer(30 m for each bore)	One Rmt	750.00	551.00	413250.00
					Rs.121691886.02
(Rupees Twelve Crore Sixteen lakh Ninety-one Thousand Eight Hundred Eighty-Six and paise Two) only					

Note: -

1. The bidder shall fill the information and the percentage rates in figures at the appropriate locations.
2. The Contractor will change percentage excess or less at appropriate location.
3. The total in words and the total amount will be calculated automatically and shall be visible to the bidder.

Approved for 25(Twenty-Five) items only.

Sd/-
Chief Engineer, Drainage

CONTRACTOR

EXECUTIVE ENGINEER,
DRAINAGE DIVISION, KHORDHA