FIFTEENTH KERALA LEGISLATIVE ASSEMBLY

ON PUBLIC ACCOUNTS (2021-2023)

FOURTH REPORT

On

Paragraphs relating to Public Works Department contained in the Report of the Comptroller and Auditor General of India for the year ended

31st March 2015 (Economic Sector).

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Smt. Sharny J., Under Secretary.

INTRODUCTION

I, the Chairman, Committee on Public Accounts, having been authorised by the Committee to present this Report, on their behalf present the Fourth Report on paragraphs relating to Public Works Department contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015 (Economic Sector).

The Report of the Comptroller and Auditor General of India for the year ended 31^{rt} March 2015 (Economic Sector) was laid on the Table of the House on 28th June 2016.

The Committee considered and finalised this Report at the meeting held on 11th March, 2022.

The Committee place on records their appreciation of the assistance rendered to them by the Accountant General in the examination of the Audit Report.

Thiruvananthapuram, 16th March, 2022.

SUNNY JOSEPH,

Chairman,

Committee on Public Accounts.

REPORT

PUBLIC WORKS DEPARTMENT

[Audit paragraph 5.5 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Inadmissible payment to contractor on balance items of bridgework

Irregular revision of rate of items mentioned in the agreement schedule by treating them as extra items and non-availing of agreed tender rebate while making payments thereon to the contractor resulted in undue benefit of ₹1.09 crore to the contractor.

As per clause 23 (e) of Notice Inviting Tenders (NIT), extra items of work are those which are not expressly or impliedly described in the schedule, plans or specification. Those items of work which though highly necessary for the proper execution of the work and its completion, if not provided for in the original contract, can be treated as 'extras'.

Further, as per Clause 3 (b) of NIT, the overall percentage rate accepted and specified in the agreement shall not be varied on any account whatsoever.

The Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) had awarded¹ (April 2009) the work "construction of bridge at Varamkadavu in Chelora Grama Panchayat in Kannur district (balance work)" to a contractor² at 21.80 per cent below estimated amount of ₹2.64 crore.

The items of work included in the original agreement schedule for formation of approach roads to the bridge structure which was completed in March 2005 consisted of earthwork for forming high embankment for approach roads, and ground improvement works using non-woven geo-textiles, woven geo-textiles and Pre-fabricated Vertical Drain (PVD).

During execution of the work, these items were treated as extra items and their rates enhanced, by executing (November 2009/March 2010) Supplementary

¹ SE (K) 5/2009-2010 dated 17 April 2009

² Sri TA Abdulrahiman, Kasargod

agreements by the SE with the contractor. The contractor had agreed to execute these extra items at 21.80 per cent below estimate rate. The work was completed in May 2011. The contractor was paid an amount of ₹ 3.81 crore in five part bills as of December 2015.

Audit scrutiny revealed that:

- The above items of work were expressly mentioned in the Agreement executed by the contractor for the balance work. So, as per clause 23 (e) of NIT, they could not be treated as extra items. However, in violation of this provision, SE had treated them as extra items and revised (November 2009/March 2010) their rates.
- The Executive Engineer, PWD Roads Division, Kannur, (EE) did not apply tender rebate from the payments made to the contractor on the extra items, even though it was agreed in the supplementary agreements executed. This was in violation of the rules on application of overall tender percentage contained in the NIT.

The above violations resulted in inadmissible payment of ₹1.09 crore to the contractor, which amounted to undue benefit extended to him, as shown in the table below:

Description of item in Agreement	Up to date quantity executed	Agreed rate after applying tender rebate	Revised rate used for payment without tender rebate	Undue benefit to the contractor (in ₹)
(1)	(2)	(3)	(4)	[2 x (4-3)]
Earth work filling with all classes of soil suitable for forming high embankment	54174.38 m ³	₹ 1516/10m³ (1939,less 21.80 %)	2,424/10m³	49,19,033.70
Providing and laying non-woven geo- textile fabric	6332.08 m ²	₹ 55.91/m² (71.5, less 21.80%)	88/m²	2,03,196.45

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(1)	. (2)	(3)	(4)	[2 x (4-3)]
Providing and laying woven geo-textile fabric	4380.78 m ²	₹ 59.82/m² (76.5, less 21.80%)	89.78/m²	1,31,248.17
Providing and laying non-woven geotextile fabric under water	800 m²	₹ 55.91/m² (71.5, less 21.80%)	88/m²	25,672.00
Providing and installing flexible pre-fabricated vertical drain	130392.10 m	₹ 66.47/m (85, less 21.80%)	109.92/m	56,65,536.75
Total undue benefit to the contractor				1,09,44,687.07

When the matter was pointed out (June 2013), Government replied (October 2014) as under:—

- revision of rates in earthwork was in lieu of wastage of earth during execution. Further, the estimate rate for earth work was adopted without applying tender rebate, as it was an extra item, and;
- the ground improvement materials viz., geo-textiles and PVD, were brought from abroad and that an approximate rate taken from earlier executed work was adopted in the estimate. But, when order was placed for these materials at the time of execution, their rates had increased. Further, these were not items included in the Schedule of Rates, but were market rate components for which tender variation was not applied.
 - The reply of Government was not tenable due to the following reasons:
- Earthwork for formation of approach roads was an item expressly provided in the original agreement schedule. Hence, revision of its rate by treating it as an extra item was a violation of the condition of NIT. Moreover, the contractor had clearly agreed in the supplementary agreement that the tender rebate of 21.80 per cent was applicable for this extra item.

- Similarly, the items for ground improvement work were also expressly provided for in the schedule of the balance work. So, the contractor had quoted his rates accordingly with tender rebate. Hence, classifying them as extra items of work and enhancing their rates was a clear violation of the NIT provision.
- Further, as per NIT, it was the duty of the contractor to ensure availability of materials before quoting his rates. Hence, the contractor was not eligible for rate revision on account of non-availability of materials and variation in market rates. In this case also, the department failed to avail the benefit of tender rebate agreed by the contractor.

Thus, the action of the Department in enhancing the rates of items expressly mentioned in the agreement schedule by treating them as extra items in violation of the NIT provisions and non-availing of agreed tender rebate on those items resulted in extending an undue benefit of ₹1.09 crore to the contractor.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

- 1) Regarding the audit objection on inadmissible payment of ₹1.09 crore to the contractor by treating the items mentioned in the agreement schedule for the construction of Varamkadavu bridge as extra items and non availing of agreed tender rebate, the Committee enquired why the soil investigation had not been conducted and how the TS had been issued without considering the conditions of soil and the length of approach road. The Chief Engineer (NH), PWD answered that the original administrative sanction was issued on the total amount based on a rough cost estimate for the work without any detailed investigation. He added that the technical sanction was issued based on a detailed estimate but the length of approach road was not considered.
- 2) The Committee noticed that a higher cost had been incurred as the approach road was built at marshy areas. To a query regarding the action of the department in granting administrative sanction to the second work, the Chief Engineer (N.H.) PWD, replied that the work of bridge proper was done by KSCC in 2005 but the work for raising up the approach road was terminated due to the sinkage of soil. Later agreement was executed by arranging the work of the approach road as balance work excluding the bridge proper.

- 3) He added that provision for the approach road was incorporated in the original work estimate. But minimum abutment height was specified in it. In technical sanction, a higher amount than that in the administrative sanction was provided for the work of bridge. But minimum provision for the approach road was given in the T.S. as the details of the work were not prepared. At the time of building the approach road the sinkage of soil was happened and KSCC demanded additional amount for the same and hence they were terminated from the work. The Committee expressed its displeasure over the attitude of the officials for not citing these matters in the RMT and for not submitting the concerned file at the time of audit.
- 4) The official from the office of Accountant General informed that audit observation was only on the balance work that was done without proper estimation and proper investigation. The Committee expressed its dissatisfaction over the termination of KSCC from the original work at risk and cost.
- 5) The Committee pointed out that the TS was issued without considering even the soil condition and the length of approach road, and the work which were expressely mentioned in the agreement schedule were treated as an extra item of work. Besides, non-availing of agreed tender rebate while making payments thereon to the contractor resulted in undue benefit to the contractor. The Committee directed the Department that a detailed report should be submitted within one month regarding the urgent situation behind issuing of TS, without considering the soil condition and in violation of NTT rules. The Joint Secretary, PWD assured to do so.
- 6) When enquired about the already worked out rate in the detailed estimate and the revised rate, the Chief Engineer, replied that the second work had done after 5 years from the original tendering and later when the balance work was tendered there was a provision for using modern technologies like Prefabricated Vertical Drains with Geo textiles for soil treatment. He added that when the earth filling was done for the completion of embankment construction, unaccounted sinkage of soil had occurred and subsequently an expert opinion from a Chennai based Geo-tech agency had been sought. The Chief Engineer also stated that since the material for PVD was imported from Malasia, the rates were varied in

tune with the exchange rates. The contractor approached the Government to get it done at market rate. Subsequently the work was treated as extra items and revised their rates and the same was approved by the government.

7) The Committee directed the department to submit a detailed report on the matters deliberated above and the Joint Secretary, PWD agreed that it would be furnished within one month.

[The additional information submitted by the Government on the above audit paragraph was considered by the Committee at its meetings held on 14-1-2020 and 22-1-2020]

Excerpts from Committee's discussion with department officials.

- 8) Regarding the construction of Varamkadavu bridge, the Committee enquired about the sanctioning of T. S. before completing soil investigation and revision of rates by considering earth works as additional work which was a clear violation of terms and conditions. The Secretary, PWD replied that rates were increased because new technology was used for the construction of vertical drains and fender piles.
- 9) The Chief Engineer (Bridges) explained the construction work of the Varamkadavu bridge. The work consisting of 476 m length bridge proper and approach road was under taken by Kerala State Construction Corporation Ltd. The Construction of bridge structure was based on sub soil investigation done at abutment and pier points. Though the approach road was passing through water logged, marshy areas no sub soil investigation was done. The administrative sanction for the construction of bridge was obtained on the basis of rough cost estimate without any detailed sub soil investigation in respect of approach road. As the proposed site was found unable to bear extra weight, KSCCL not only comply the direction put forth for soil investigation but also requested to increase the estimate rate as well. When detailed investigation was conducted, there was a change in design parameters and in addition to this, pre-fabricated drains, woven and Nonwoven Geo Textile materials etc. had to be provided, thereby increasing the estimate rate.

- 10) The committee enquired whether there was any provision in PWD norms to tender a work based on rough estimate. The Chief Engineer informed the Committee that earlier, work was tendered with a rough estimate and the detailed design was submitted later. He further informed that this particular issue was in 2005 and now work cannot be tendered using rough estimate.
- 11) The Committee wanted to know how the detailed project report and detailed estimate was prepared. The Chief Engineer informed that it was prepared after conducting investigation and in this case investigation was done for Bridge proper and immediate approach construction.
- 12) When Committee enquired whether soil testing and detailed investigation was done as per PWD norms in this case, the Secretary, PWD replied that technical sanction was given only after all these procedure, and in this case detailed investigation was done for bridge proper and immediate approach road. The question of the Committee to clarify whether soil investigation was conducted as a part of investigation, the witness Executive Engineer (Bridges), Public Works Department answered that detailed investigation was done for the place allotted for bridge proper but soil testing was not done for approach road construction.
- 13) The Committee acknowledged the fact that sometimes administrative sanction was provided considering rough estimate, and it was not unusual that as amount may increase when soil testing is done due to presence of rocks or water logged area. The Committee also opined that estimate could be revised in cases where the land could not be acquired within the agreement period due to some unexpected works. But the Committee strongly commended that sanctioning TS according to a rough estimate cannot be justified and criticized the department for not following proper tender procedure.
- 14) The Committee wanted to know whether separate estimate was prepared for bridge proper and approach road for which Executive Engineer (Bridges) replied that both could be completed within a single estimate. He further informed the Committee that changes in foundation and piller of bridge may affect the estimate amount and the rate difference is usually rectified through revised estimate.

- 15) The Committee pointed out that the mentioned work was carried out violating PWD norms, without proper investigation or detailed estimate.
- 16) When enquired about the bill payment details, the Executive Engineer apprised the Committee that final bill had not been produced and that payment for the remaining amount is pending. The Committee then asked about the reason for not producing the final bill, the amount remaining to be settled; the total estimated amount and the difference in amount when the estimate was revised. The Executive Engineer informed that the total estimate was 21.15 crore which included 18 crore for bridge proper and 3.15 crore for approach road which later increased to 22.50 crore. To the question of the Committee when the construction of bridge was completed, the witness Executive Engineer (Bridges) replied that the work was completed in 2010 and that the bill was submitted in the same year itself
- 17) The Committee expressed its displeasure to know that some files related to the above case seems missing as all files were not handed over to PWD from KSCCL. The Secretary, Public Works Department informed the Committee about the fact that the construction of Varamkadavu bridge was taken up by Kerala State Construction Company Limited and that they had not completely claimed their amount. He added that the work had been completed within 7 months as per the order of Hon'ble Highcourt and Chief Engineer had approved the design and there was no objection regarding the procedure of the work.
- 18) The Secretary, Public work department informed the Committee that the discrepancy came up as they used the latest technology available at that time for the construction, which accordingly increased the total estimate cost. The Committee enquired whether new technology was applied after the work was awarded and the agreement was signed.
- 19) The Chief Engineer (Bridges) Public Works Department informed the Committee that the total cost increased when land spanning has to be conducted due to deficiency of soil as well as when construction work had to be done through wet land. He added that similar instance could be identified in KIIFB project, Konnayil Kadavu where the construction work was dropped due to miscalculation in selection of appropriate site for construction.

20) Expressing dissatisfaction in the reply furnished by the department, the Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil investigation and in allowing inadmissible payment to contractor by treating the earth works as extra item. The Committee directed the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.

Conclusions/Recommendations

21) The Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil investigation and in allowing inadmissible payment to the contractor by treating the earth works as extra item. The Committee directs the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.

[Audit Paragraph 5.6 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Disallowance of re-imbursement claim by MoRTH

Execution of original works without prior approval of MoRTH by treating them as ordinary repair works resulted in rejection of reimbursement claim of ₹68.10 crore besides foregoing agency charges of ₹6.13 crore.

The Ministry of Road Transport and Highways (MoRTH) is primarily responsible for development and maintenance of National Highways (NHs). The activities are monitored by the Regional Office of MoRTH in each State. The actual work of construction of NH is entrusted to State Government on agency basis under the provisions of Article 258 of the Constitution of India for which nine per cent agency charges are claimed by State Government from MoRTH. The role of State Government is confined mainly to maintain, upgrade and improve the riding quality of existing NHs and carry out ordinary annual repairs.

Up to 31st March, 2003, the State Government was to initially incur expenditure on construction and maintenance of NHs and then get it reimbursed

from MoRTH. With effect from 1st April 2003, the system was changed to Direct Payment Procedure (DPP) by MoRTH for all NH works under the major head 5054 and Special repair and periodical renewal / Improvement of Riding Quality works under major head 3054. The transactions under DPP, therefore, do not involve the State Government budgetary system. For Ordinary Repairs (ORs) and Flood Damage Repairs (FDRs), the previous system was continuing. As such, the NH works undertaken as ORs and FDRs do not require prior sanction by MoRTH before execution.

Scrutiny of records (between December 2011 and October 2015) in five offices³ of NH wing of Public Works Department (PWD) revealed that 17 works were executed during the period 2011-12 and 2014-15 treating them as ORs, based on the sanctions of State Government only and claimed reimbursement from MoRTH (between January 2012 and June 2014) projecting them as ORs. The MoRTH disallowed (between March 2012 and September 2014) the claim for reimbursement stating that the works executed were not ORs but Original Works requiring prior sanction of MoRTH before execution. The claims thus disallowed amounted to ₹68.10 crore which the State Government had to bear from its own budgetary resources. Besides, the State also could not claim agency charges amounting to ₹6.13 crore.

Thus, the department failed to adhere to the guidelines of MoRTH while making claim for reimbursement of expenditure incurred on the maintenance of NHs and consequently burdening the State exchequer to the extent of ₹74.23 crore.

Government replied that the department had arranged the works due to poor condition of NHs in the State and inadequacy of funds/sanction from Government of India. It was also stated that the works undertaken were ORs not requiring prior sanction from MoRTH. The reply is not tenable as the works executed were not Ordinary Repair works but were Original Works as remarked by MoRTH while scrutinising the claim for reimbursement. Further, these Original Works required prior sanction from MoRTH.

³ NH Division Kannur, Kodungallur, Kozhikode, Moovattupuzha and NH North Circle Kozhikode.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials

22) The Chief Engineer (N.H) informed that during the period 2011-12 and 2014-15, there had been public protest over deplorable conditions of NH in the state, and the work were arranged on the basis of two G.Os charging to state exchequer and later of claim of ₹68.10 crore was submitted to MoRTH for reimbursement. But the claim was rejected by MoRTH stating that the works executed were not ordinary repairs but original works requiring prior sanction of MoRTH before execution. Later the amount was written back as per C&AG's direction. Then the AG directed for the additional authorisation in the head of account '3054' when the chances of re-imbursement became rare. Then the government additionally authorised ₹20 crore during 2013, and the remaining ₹40 Crore during the last year. For a query of the Committee on the amount of Central government allocation for NH maintenance, the witness replied that Central Government allotted ₹12 crore for ordinary repair and ₹77 crore for major repair. He added that the department had arranged works due to poor condition of NHs and inadequacy of funds recieved from Government of India and the works undertaken were ORs not requiring prior sanction from MoRTH. The Committee remarked that a procedural lapse was vivid in the whole process. meeeting was convened by the Principal Secretary, PWD no representative of NHAI was invited. The issue could have been avoided had proper communications with the central government authorities were carried out.

Conclusion/Recommendation

23) No Comments.

[Audit Paragraph 5.7 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Awarding work without tender and providing undue benefit to a contractor

The execution of work without tender process and unwarranted revision of agreed rates by PWD extended undue benefit of ₹ 92.32 lakh to the contractor.

As per Para 2003 of Kerala Public Works Department Manual, works shall normally be awarded through open tenders after getting administrative and technical sanction and ensuring provisions of funds in the Budget.

Secretary to Government, PWD sanctioned (December 2012) re-construction of the partially collapsed Menonpara bridge across Korayar river in Nattukal-Velanthavalam State Highway in Roads Division, Palakkad through M/s. Kerala State Construction Corporation Limited (KSCC) without inviting tender at an estimated cost of ₹ 10.15 crore to avoid delay in tendering process. The Superintending Engineer (Roads and Bridges), North circle, Kozhikode(SE), awarded (January 2013) the work to KSCC at a cost of ₹9.31 crore. The site was handed over (January 2013) to the contractor for completion of work in 18 months. PWD revised (March 2013) the sanction to ₹18.30 crore after including road improvement work of nine kms in place of three kms originally estimated. The work was completed in May 2014. The contractor was paid ₹17.49 crore up to June 2015.

One of the items of work included in the agreement schedule for the construction of bridge was "Boring through all classes of soil for cast in situ bored piles with concrete mix M25, 1.20 metre internal diameter anchoring of pile in rock for a minimum depth of 50 centimetres etc". The work involved construction of 28 piles, 12 piles for piers each having an average depth of nine metre and 16 piles for abutment each having an average depth of 10 metre. The total length of piles was estimated to be 270 m and the agreed rate was ₹16,344 per metre. However, during actual execution, Chief Engineer, PWD Roads and Bridges (CE) revised (May 2013) the rate of the above item from ₹16,344 to ₹34,017 per metre citing reasons such as increase in average depth of piles from 9 to 19 m due to non- availability of hard rock at the estimated depth, error in calculation of hire charges for piling plant and use of M Sand⁴ due to scarcity of

⁴ Mineral sand - This is at times used as an alternate for river sand.

river sand. CE sanctioned (May 2013) the rate of above item as 'extra item' and SE executed (June 2014) a SupplementaryAgreement for a total length of 549.85 m. An amount of ₹1.87 crore was paid (July 2014) to the contractor for the 'extra item'.

Audit scrutiny (February 2014) revealed the following:

- The bridge had collapsed in August 2010 and the Government decided to take up re-construction work only after a lapse of two-and-a-half years of collapse.
 Awarding of work to KSCC only without inviting open tenders after two-and-a-half years was lacking not only in justification but it was also against manual provisions which advocate transparency in selection of bidders through open competition.
- Items of work which do not form part of the original Agreement Schedule are treated as "Extra items". In this case, the item "boring cast in situ piles", was already existing in the Agreement Schedule. As such, it cannot be subsequently treated as an "extra item".
- The contractor is expected, before quoting his rates, to inspect the site of
 the proposed work and assess the availability of specified materials. He is also
 expected to get himself acquainted with the sanctioned estimate, approved plans
 and drawings. Once his rates have been accepted and agreement finalized and
 signed, he is bound by the same and cannot claim its revision on grounds of errors
 in sanctioned estimates, un-availability or scarce availability of the specified
 materials etc.
- In the name of approving an "extra item", the Department has resorted to revision of rates and specifications, after the award of work, on grounds of "scarce availability of river-sand", "error in calculation of hire charges of piling plant" and made an extra payment of ₹97.17 lakh to KSCC. The action of the department was wrong as the ground cited for their action were not valid.

Thus, undue revision of rate resulted in extra payment of ₹97.175 lakh to the contractor.

^{5 (₹ 34,017 - ₹ 16,344)} x 549.85m

Government replied (October 2015) that the work was entrusted to KSCC to avoid delay as the tendering procedure would have taken long time. Further, the rates for piling were revised as the depth of piling work had to be increased from 270 m to 549 m during execution. Besides, due to non-availability of good quality of river sand, the M sand was substituted and that there was some mistake in preparation of data.

The reply of the Government was not acceptable because the period of two-and-a-half years between the date of collapse of bridge and award of work for re-construction was reasonably adequate for completing all open tender formalities including invitation of competitive tenders so that the work could be awarded without compromising transparency instead of giving to KSCC only. Further, the revision of rates for piling was also not acceptable as the rate agreed by the contractor for piling was per metre and not for casting entire pile for a specific length. Besides, rate once concluded in the agreement signed by both the parties, was not required to be revised.

Thus, unwarranted revision of rate resulted in extension of undue benefit of ₹92.326 lakh to the sub-contractor of KSCC.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials

24) Regarding the audit objection, the CE (NH) apprised that the work entrusted to the KSCC was as per government order. Though the old Menonpara bridge was collapsed on 2010, the government accorded AS in 2012 for the re-construction work without tender. During the actual execution, the Chief Engineer, revised the rate of the item due to error in calculation of hire charges. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on grounds of errors in sanctioned estimates should not be permitted. It opined that the enhancement of rates from ₹ 16344/m to ₹ 34017/m had no basis and the original rate should have been applied for the increased length of piles. The awarding of work to KSCC without

^{6 ₹ 97.17} lakh less ₹ 4.85 lakh being five per cent margin of KSCC.

inviting open tender against manual provision had no justification. The Committee viewed it as a fraudulent act and directed the department to look into the matter seriously and take disciplinary action against the officials responsible for it.

Conclusion/Recommendation

25) The Committee understands that the old Menonpara bridge collapsed in 2010, and the Government accorded AS in 2012 for the re-construction work without inviting open tenders. During the actual execution, the Chief Engineer revised the rate of the extra item due to error in calculation of hire charges for piling plant. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on the grounds of errors in sanctioned estimates could not be permitted. The Committee opines that the revisions of agreed rates had no basis and the original rates should have been applied for the increased length of piles and the awarding of work to KSCC without inviting open tender against PWD manual provisions had no justification. The Committee observes it as a fraudulent act and directs the department to look into the matter seriously and take disciplinary action against the officials responsible for it.

[Audit paragraph 5.8 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 3lst March 2015.]

Wasteful expenditure on construction of fender piles in a bridge work

Department constructed "fender piles" for protecting a bridge from the impact of collision with barges even though bridge did not have scope for navigation of heavy vessels resulting in wasteful expenditure of ₹3.12 crore.

The Public Works Department (PWD) awarded the work of the construction of 'Thadikkakadavu Bridge' across Perlyar river by Roads division, Ernakulam for ₹27.51 erore. The site was handed over (June 2012) to the contractor for completion of work in 18 months (December 2013). The work remained incomplete (July 2015) and the contractor had been paid ₹15.71 erore (July 2015).

The bridge was designed to rest on a foundation of bored cast-in-situ piles, for which 2,650 metres of piles at a unit rate of ₹27,056 per metre were planned. During execution, the length of piles was increased to 3220 metres of which 729.79 metres were provided as 'fender piles' in a separate pile group, upstream and downstream of the bridge. The department stated that the fender piles were required to protect the bridge from the impact of collision from heavily loaded cargo boats moving from Nedumbassery airport to Kochi city. The cost of construction of fender piles was ₹3.12 crore³.

Audit observed that though the original design of the bridge was approved (March 2012) by the Design Research and Investigation Quality Control wing (DRIQ), under the control of Chief Engineer (Designs) as stipulated in the PWD manual, the design of fender piles was approved (November 2012) by the CE himself, which means that the DRIQ was not involved in the change of design of fender piles.

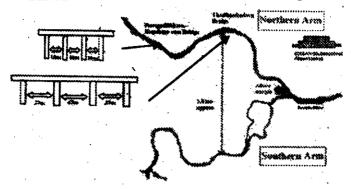
It was further noticed that there was no specific request from various stakeholders / departments (KSINC, SWTD, IND etc.) regarding provision for fender piles. Moreover, the route identified for connecting Nedumbassery airport with Kochi city passes through the southern arm of river Periyar, whereas the bridge was constructed on the northern arm as shown in the sketch attached.

Further, there was no infrastructure for anchoring of cargo boats anywhere near the Nedumbassery airport. Therefore, the construction of fender piles by adducing to safety concerns from barges/cargo boats was not tenable.

⁷ Fender piles are provided in ports and harbours to absorb the impact of berthing vessels and to avoid damage both to the vessels and the structure which are made of shock absorbing materials.

⁸ Floating platform for working ₹ 25.61 lakh (+) anticorrosive treatment to reinforcement ₹ 4.51 lakh (+) boring and concreting ₹ 197.45 lakh (+) providing casing pipe ₹75.90 lakh (+) providing reinforcement to concrete ₹ 43.24 lakh = ₹ 346.71 lakh less tender rebate ₹ 34.95 lakh = ₹ 311.76 lakh say ₹ 3.12 crore.

Sketch of Location of Thadikkakaadavu Bridge



Audit also observed that the fender piles were made of concrete with no impact absorbing quality to provide protection either to the bridge structure or to the vessels in the event of a collision. Further, the top level⁹ of fender piles constructed was much below the Maximum Flood Level (MFL)¹⁰ of the river. The fender piles would not be visible during flood, making it likely to cause damage to the piers of the bridge as well as the barges. Thus, the purpose of protecting the piers with the help of fenders was doubtful.

On being asked, the Secretary, PWD replied (October 2015) that on account of concerns of polluting the drinking water projects at Chowara and Aluva, Cochin International Airport Limited (CIAL) shelved a proposal to develop the Southern branch of Periyar river as a waterway connecting CIAL to Kochi Seaport for cargo movement. An alternative proposal of developing the Northern branch was under consideration of CIAL, and hence, the fender piles were constructed in anticipation of movement of heavy cargo vessels through the same.

The reply was not tenable in view of the confirmation provided by Irrigation Department that there were no plans of developing the Northern branch of Periyar River over which the Thadikkakadavu bridge is constructed, as a waterway connecting CIAL with the Kochi Seaport. Irrigation Department further confirmed that there were bottlenecks for large scale cargo movement from CIAL to Kochi city/seaport through the Northern branch, like insufficient vertical clearance of existing cross structures, insufficient width and depth in a five km stretch between CIAL and Chengal thodu.

^{9 49.8000} metres

^{10 51.825} metres

Thus, the decision to change the designs for providing fender piles was taken without assessing actual requirement and approval of the DRIQ Board which led to wasteful expenditure of ₹3.12 crore on construction of fender piles.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

- 26) Regarding the audit paragraph, Executive Engineer, PWD informed that, it was decided to construct fender piles for protecting the pier of the Thadikkakadavu bridge came up during the execution of work in view of an alarming incident of vessel hit to Venduruthy Bridge. The Committee questioned the purpose behind the construction of fender piles when the same would not be visible above the water level during floods.
- 27) The witness continued that the fender piles were constructed to protect the bridge, not the barge, and the possibility of occuring flood was rare. The Executive Engineer (Design & Bridges) added that the irrigation department confirmed that there was no navigable water ways connecting Nedumbassery Airport to Periyar River, and thus the audit objection occurred, but they had constructed a locking system in Purappillykavu bridge in the northern arm of Periyar for navigation purpose. The Committee noted that the irrigation department gave an impression through the construction of Purapillykavu bridge that the northern arm was also navigable and the fender piles constructed at Thadikkakadavu Bridge was necessary. The Committee had requested Accountant General to verify the issue with the irrigation department and to furnish a reply in this regard.

[The additional information from the government on the above audit paragraph was considered in the meeting of the Committee held on 14-1-2020 and 22-1-2020. The Committee also considered verification report submitted by Accountant General upon the request of the Committee.]

Excerpts from Committee's discussion with department officials

- 28) The chairman explained the background for the discussion. Audit para 5.8 is regarding the loss sustained to the tune of ₹ 3.12 crores by unnecessary construction of fender piles for Thadikkakadavu Bridge. In earlier discussion PWD Officials had drawn attention of the Committee to the fact that similar fender piles were constructed for Puramppallykavu Bridge too. As per request of the Committee, Accountant General conducted a joint verification with Irrigation Department team and submitted a verification report before the Committee. In the report it is stated that Purappillykavu Bridge is actually a regulator-cum-bridge with navigation lock and dimension of navigation lock indicates that any bridges with a span of more than 10 meter either upstream or downstream would no way facilitate navigation due to bottleneck at Purappillykavu RCB. The report clearly states that since Purappillykavu RCB is suitable for movement of small vessels only, need of fender piles at Thadikkakadvu Bridge was unwarranted.
- 29) Regarding the construction of bridge over water ways, the Secretary apprised that new guidelines had been issued for fixing minimum height for bridges included in State Water ways system and hence cost will increase for land acquisition and construction. The Committee pointed out that these guidelines was also compulsory for National Water Ways.
- 30) The Committee understands that regarding the construction of Thadikkadavu bridge, audit observation points out the extra expenditure of ₹3.12 Crore for construction of safe guard pillars, which was not included in estimate. The Chief Engineer (Bridges), PWD replied that the work was done as piling was about to be completed. The Committee pointed out that such a construction was done in a place which was not at all navigable and was clearly an unwarranted work.
- 31) The Committee considered the verification report submitted by Accountant General on Committee's request. In the report Accountant General strongly refuted the Department's stand, that fender piles were constructed at Thadikkakadavu bridge across Periyar for protecting the bridge from collusion by barges, by clearly showing specific evidence that the particular stretch of waterway is not suitable for navigation because of the bottleneck upstream at Purappillykavu RCB which makes passage of heavy or medium size vessels

impossible. Also the portion of river is not included in national water ways and no plans are there for developing the stretch for navigation. The Committee, analysing Accountant General's report, observed that it was clearly an unnecessary work to construct fender piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to drop the audit para with a stern warning to the Department to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.

Conclusion/Recommendation

32) The Committee observes that it was clearly a wasteful expenditure to construct fender piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to the exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to warn the Department and to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.

[Audit paragraph 5.9 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Avoidable payment on sinking of wells for foundation of four bridges

Separate payment amounting to ₹2.28 crore was made to the contractors by PWD outside the agreed rate for removing obstacles encountered during sinking of wells for foundation of four bridges.

The special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work necessary for such operations. The conditions further stated that all items should be carried as per the relevant specification in the Madras Detailed Standard Specification (MDSS) which specifies that when the well has reached the required level care should be taken to see that it is seated properly.

Superintending Engineer, Roads and Bridges, North Circle, Kozhikode (SE), had awarded¹¹ (March 2011 to July 2012) four bridge works under PWD Roads Division, Manjeri at an estimated cost of ₹24.65 crore in Malappuram district. As per the agreement schedule, one of the items of work was sinking of reinforced cement concrete circular well in all classes of soil other than rock. The sinking process includes scooping of earth to line, level and plumb from inside and below steining with dredgers and other appliances including removal of obstacles. The EE made extra payments of ₹2.28 crore to the contractors of four bridge works towards charges for cutting and breaking down boulders having the size of more than 40 dm³ during sinking of wells and for seating of wells as shown below:

Table 5.1: Details of works showing extra payments made

Şl. No.	Name of work	Particulars of estimated cost and extra payments for well sinking				
		Item(as per agreement)		Extra payment on (V in lakh)	Percentage of extra payment on estimated cost	
(1)	(2)	(3)	(4)	(5)	[(5)/(4)]x100	
1.	Construction of Mythrakadavu bridge Construction	5	6.36	96.12	1,511.32	
2.	Construction of Valippadam- Alungalkadavu bridge	6, 7	15.15	63.49	419.08	
3.	Construction of Thayyilakkadavu bridge	6, 7	11.57	30.00	259.29	
4.	Construction of Umminikadavu bridge	6, 7	15.01	38.51	256.56	
	Total		48.09	228.12	474.36	

Source: Agreements and vouchers

¹¹ Shri.V.P.Mohammed Ayub, Eranhikode, Edavana, Malappuram, M/s Ernad Engineering Enterprises Ltd., Kodur P.O, Malappuram, M/s Thrimathy Contracting, CPC Centre, Hospital Road, Nilambur.

As can be seen from the above table, the percentage of extra payment comes to nearly four times the estimated cost of the agreed item of well sinking and this payment was made without following the usual tender procedure.

In this connection Audit observed the following:

All works except the extra items were put to tender on 'percentage rate basis' in which the 'quoted rate' was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The workable rate quoted by the bidder was inclusive of charges for removing boulders irrespective of their size. Therefore, the payment for cutting and breaking down boulders of more than 40 dm³ size during sinking of abutments and pier wells and for seating of wells on base, over and above the estimated cost was contrary to the provisions contained in the agreement.

Secretary, PWD stated (October 2015) that the approved design of bridges insisted seating of well foundation upon a levelled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rock and that in order to seat the well foundations, the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the above rock cutting works were not included in the agreed specifications. Further, the reply stated that the general note in Standard Data Book permitted the payment for cutting down boulders of size above 40 dm³ and wooden logs of size above 100 dm³ if encountered during well sinking.

The reply of the Government was not tenable as the quoted rate was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The specification in the tender schedule and agreement schedule for the item of well sinking included 'removal of obstacles'. As notes in the Standard Data Book were not made part of the agreements, extra payment for cutting down boulders of size above 40 dm³ was not permissible. Thus, due to its failure to adhere to the specifications in the tender schedules, the Department had extended undue benefit of ₹2.28 crore to the contractors.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

33) The Committee noted that the special conditions of contract stipulated that the rate quoted was inclusive of all the operations contemplated in specification and tender schedules including incidentals. The Executive Engineer (Design & Bridges) informed that the approved design of bridges insisted seating of well foundation upon a levelled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rocks and that inorder to seat the well foundations, the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the rock cutting works were not included in the agreed specifications. The Committee remarked that the specification in the tender schedule and agreement schedule for the item of well sinking included 'removal of obstacles'. As notes in the standard Data Book were not made part of the agreements, extra payment for cutting down boulders of size above 40dm3 was not permissible. The Committee remarked that the agreement executed for a work should be comprehensive enough to include all the incidental items that were essential for proper execution of the work.

Conclusion/Recommendation

34) The Committee opines that the special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work also. The Committee directs the department to ensure that the agreement to be executed for a work should be comprehensive enough to include all the incidental items that are essential for the proper execution of work.

[Audit Paragraph 5.10 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Extra expenditure due to non-finalisation of tender within the firm period

Lapse of the department in adhering to PWD Manual instructions and Government orders regarding finalisation of tender within firm period resulted in avoidable financial implication of \$1.56 crore.

According to the provisions of Kerala PWD Manual, consideration of tenders and the decision thereon should be completed well before the date of expiry of the firm period noted in the tender so that the selection notice is sent on or before the expiry of the firm period¹². In case, selection notice is not issued before the expiry of the firm period, the bidder's offer would stand nullified automatically. In order to avoid such delays, Government had issued (May 2007) instructions prescribing time frame for completion of processing of tenders at various stages. Accordingly, the department shall place the tender before the Government within six weeks from the date of opening of tender followed by its submission before the Government Tender Committee (GTC) within seven days. After approval of proposal by GTC, order shall be issued within one week. The GOK, Finance Department had issued orders (January 2010) that in cases where tender amount is in excess of 10 per cent of Local Market Rate¹³ (LMR), justification should be submitted along with the tenders.

The Secretary (PWD) issued (December 2011) Administrative Sanction (AS) to the work 'Improvements to Kodumba-Padalikkadu Canal bund road from km 0/000 to 8/200' in Palakkad district at a cost of ₹ 5.10 crore. Based on Technical Sanction (TS) given by CE, the Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) invited (January 2012) prequalification-cum-tenders (PQ) for works from eligible contractors, fixing date of opening as 6 March 2012. The firm period of tender was 120 days i.e. up to 3 July 2012. Of the two bids received, one was pre-qualified (2 April 2012) by the Chief Engineers' Committee. The SE opened (10 April 2012) the financial bid of the pre-qualified contractor¹⁴ whose quoted rate was 14.89 per cent above the estimate rate. After processing the tender, the department accepted (April 2013) the tender

¹² The firm period of a tender is the period from the date of opening of the tender to the date upto which the offer given in the tender is binding on the bidder. The firm period is fixed as the maximum time required within which a decision can be taken on the tender and order of acceptance issued in writing to the bidder, which shall be prescribed in the NIT.

¹³ The Local Market Rate for materials and labour shall be fixed by the EE twice every year for preparing LMR justification for the purpose of estimates for tender approval.

¹⁴ M/s PK Construction Company, Muvattupuzha,

rate quoted by the contractor after delay of eight months. In the meantime, the firm period had expired due to which the contractor was not willing (May 2013) to take up the work.

After failing to award the work due to the contractor's unwillingness, the department re-tendered (July 2013) the work which evoked no response. However, citing urgency of the work, the department invited (November 2013) negotiated quotations from 'A' class registered contractors for the work at the same estimate rates in terms of instructions contained in PWD manual. The only quotation received from a contractor¹⁵ was at 48.50 per cent above the estimate rate which was accepted (May 2014) by the Department at 45.43 per cent above the estimate rate as recommended by the Committee of Secretaries. The work was awarded (May 2014) to the contractor for ₹7.24 crore. The work which was scheduled for completion by May 2015 had been extended up to February 2016. An amount of ₹5.05 crore had been paid for the work done till September 2015.

Audit scrutiny relating to the first tender revealed that though the tenders were opened on 6 March 2012, the SE had furnished LMR justification only on 3 December 2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by SE resulted in delayed approval of tender by PWD and GTC. The LMR justification (December 2012) was 43.65 per cent above estimate rate. Audit observed that had the tender been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹5.68 crore as against agreed value of ₹7.24 crore.

On this being pointed out, the SE stated (August 2014) that the delay in forwarding tenders to PWD was due to the delayed response of the first contractor to negotiations. The reply was not tenable due to the reason that had the SE prepared LMR justification soon after the opening of financial bid, it would have been evident that the tender excess of 14.89 per cent above the Estimated Probable Amount of Contract offered by the first contractor was far below the LMR (December 2012) of 43.65 per cent.

¹⁵ M/s P.G Constructions, Pullani, Oarambil, Thrithala, Mezhathur P.O, Palakkad.

Thus, the non-approval of the first tender by the department within the firm period due to non-preparation of LMR in time and delay in submission of tender documents adhering to the time schedules as per guidelines resulted in avoidable financial implication of ₹1.56¹⁶ crore which call for fixing of responsibility of the officials at fault for the inordinate delay in finalising the tender and initiate appropriate action against them.

[Note furnished by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from committee's discussion with department officials.

35) Regarding the audit paragraph, the executive Engineer (Design & Bridges) PWD admitted that the first tender work was not finalised within the firm period due to the delay occurred in the preparation and submission of LMR Comparison Statement. He added that PWD had modernised the system of LMR justification estimate through 'PRICE Software' and the delay would be eliminated in future by the implementation of the new system. But the Committee was not satisfied with the explanation given by the department on the particular case and decided to recommend that disciplinary action should be taken against the officers responsible for the delay and resulted in loss to public exchequer and to report it to the Committee within one month.

Conclusion/Recommendation

36) The Committee observes that the first tender work was not finalised within the firm period due to delay occured in the preparation and submission of LMR comparison statement resulted in huge lose to the exchequer to the tune of ₹1.56 crore. Hence the Committee opines that it could not be condoned and recommends that disciplinary action should be taken against the officers responsible for the delay.

[Audit Paragraph 5.11 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Double payment to the contractor for same work through Hand Receipts

Failure to exercise required verification by PWD resulted in double payment for executing an item of work in the construction of Mythrakadavu bridge across river Chaliyar in Malappuram District.

Article 40 (b) of the Kerala Financial Code provides that every Government servant who incurs or authorises the incurring of any expenditure from public funds should see that the expenditure should not be prima facie more than the occasion demands. He is expected to exercise the same diligence and care in respect of all expenditure from public money under his control as a person of ordinary prudence would exercise in respect of the expenditure of his own money.

Superintending Engineer, Roads & Bridges, North Circle, Calicut, (SE) had executed an agreement (March 2011) with Shri V.P.Mohammad Ayub, contractor, Eranhikode, Edavana, Malappuram District, for the construction of Mythrakadavu bridge across river Chaliyar in Malappuram District. The work was executed by the Executive Engineer, Roads Division, Manjeri (EE).

Audit of vouchers (July 2015) of Public Works Department transactions (PWD) in the office of the EE revealed that the EE had made (July 2015) a payment of ₹14.93 lakh through a Hand Receipt (HR) prepared by the Assistant Engineer, Bridges Section, Manjeri (AE) and verified by the Assistant Executive Engineer, Bridges Sub Division, Manjeri (AEE) for an item of work "cutting and breaking into small pieces of boulders size during sinking of wells and seating of well-pier-2". The payment recorded at page 35 of Measurement Book No.7732, was made through the Bill Discounting System (BDS) and adjusted in the Monthly Account of July 2015 through a Transfer Entry (July 2015). The EE made (July 2015) payment based on the sanction accorded in respect of an item of work in the Daily Labour Report by the Chief Engineer, Roads & Bridges (CE), Thiruvananthapuram.

As the sanction was more than two years old, a further scrutiny in Audit revealed that a total amount of ₹55.12 lakh (including the amount of ₹14.93 lakh related to the work) was paid during July 2015 for executing the item and that the

amount of ₹14.93 lakh had already been paid earlier during May 2013 (CBV 150Dn of May 2013) based on the same sanction for executing the same item. Both the payments, i.e. May 2013 and July 2015 were made through HR prepared by the then AE and verified by the then AEE and recorded on Page 6 of Measurement Book No.9360.

Further Audit investigation revealed that only one Daily Labour Report (DLR) was sanctioned in the Divisional records to support the payment of ₹14.93 lakh (May 2013). No DLR was available to support the second payment of July 2015 which confirmed that payment of ₹14.93 lakh made to the contractor during July 2015 through the BDS was double payment. On this being pointed out by Audit (December 2015), the EE admitted the double payment and got the amount remitted from the contractor in December 2015.

Audit of Internal Control Mechanism of the office of the EE, further revealed that the office was neither maintaining nor monitoring the requisite Control Registers as stipulated in Kerala Public Works Account Code Para No.10.5 (Works Abstract), Para Nos.10.6 and 5.3.3 (Works Register), Para No.10.7 (Contractors' Ledger) and Para No.22.2.7 (Miscellaneous Sanction Register). The AE was, thus, not exercising any preliminary checks on the contractors' claims. Thus, disregard for the mandatory checks of consulting previous records by the EE led to double payment of ₹14.93 lakh for the same work.

Further, the double payment of July 2015 was made through the newly introduced Bill Discounting System (BDS). The Finance Department (FD) transfers the details of only those Bills into the BDS database which are processed and recommended by the CE in 'EMLI' software and for which the FD had agreed to issue a Letter of Credit (LoC). The fact that the LoC for the payment of ₹14.93 lakh was issued by the FD in July 2015 and that the payment of July 2015 occurred through BDS, confirmed that the claim of the contractor was processed and recommended throughout the entire chain of authorities from the AE level to the CE level and that none of the authorities could detect the double payment being attempted. This revealed as under.

¹⁷ EMLI-Effective Management of Letter of Credit Issuance

- a weak Internal Control Mechanism in the Roads and Bridges wing of the PWD:
- recovery of double payment in this case was at the instance of Audit but
 no action has been taken against the officials responsible for this. Besides, the
 present system gives scope for such double payments escaping detection in future;
- The software EMLI was not able to detect the fact that a Letter of Credit had already been generated against the same sanction at an earlier date.

In this respect, Audit recommends as under:

- 1. The commission of double payment coupled with the weakness of the Internal Control Mechanism of the Department requires thorough investigation, preferably by Vigilance authorities to pre-empt any intentional negligence/fraud;
- 2. The software 'EMLI' may be modified so that only one Letter of Credit is generated against a sanction and any further attempt to generate Letter of Credit on the same sanction would be rejected by the system automatically; and
- 3. The payment of huge amounts through HRs (KPW Form 24), instead of the Forms KPW 22 (for making first and final payment to contractor) or KPW 23 (for making running payments), may be discouraged as the HRs lack the basic control measures and accountability provisions as compared to Forms KPW 22 or 23 which help to pre-empt irregular payments.

During Exit Conference, the Chief Engineer stated that this was the first instance and no other case of double payment was currently known to the Department. As regards enquiry about such instances taken place in other Divisions also, the Secretary to Government stated that assurance could be furnished only after an investigation in the matter. Thus, thorough investigation is required in the matter to guard against the recurrence of such serious lapses in future.

[Note furnished by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from committee's discussion with department officials.

- 37) Regarding the audit objection, the Executive Engineer (Design & Bridges) PWD informed that when the duplication in payment was detected, immediately the department issued an order to recover the excess amount paid and the contractor remitted the excess payment on the same day. Hence no financial loss was sustained by Government and departmental action was taken against the officials responsible for this.
- 38) With regard to the program of rectification of the software EMLI the Joint Secretary PWD, informed that they had discussed the matter with finance department and NIC.
- 39) The Committee observed that double payment and weak internal control mechanism existed in the Roads and Bridges wing of the PWD and needed a thorough investigation. The Committee directed the inspection wing of the Finance Department to conduct an enquiry for such instances that might have taken place in other PWD divisions. The Committee also directed the Public Works department to look into the matter seriously and the recurrances of such serious lapses should be avoided in future.

Conclusion/Recommendation

40) The Committee observes that double payment and weak internal control mechanism exists in Roads and Bridges wing of the Public Works Department that needs to be investigated thoroughly. The Committee directs the inspection wing of the Finance department to conduct an enquiry for such double payment that might have taken place in other PWD divisions. The Committee also directs the Public Works department to look into the matter seriously and the recurrences of such serious lapses should be avoided in future.

Thiruvananthapuram, 16th March, 2022.

SUNNY JOSEPH,

Chairman,

Committee on Public Accounts.

APPENDIX I SUMMARY OF MAIN CONCLUSION/RECOMMENDATION

S1.	Para	Department	Conclusion/
No.	No.	concerned	Recommendation
1	21	Public works	The Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil investigation and in allowing inadmissible payment to the contractor by treating the earth works as extra item. The Committee directs the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.
2	25	Public works	The Committee understands that the old Menonpara bridge collapsed in 2010, and the Government accorded AS in 2012 for the reconstruction work without inviting open tenders. During the actual execution, the Chief Engineer revised the rate of the extra item due to error in calculation of hire charges for piling plant. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on the grounds of errors in sanctioned estimates could not be permitted. The Committee opines that the revisions of agreed rates had no basis and the original rates should have been applied for the increased length of piles and the awarding of work to KSCC without inviting open tender against PWD manual provisions had no justification. The Committee observes it as a fraudulent act and directs the department to look into the matter seriously and take disciplinary action against the officials responsible for it.

3	32	Public works	The Committee observes that it was clearly a wasteful expenditure to construct fender piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to the exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to warn the Department and to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.
4	34	Public works	The Committee opines that the special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work also. The Committee directs the department to ensure that the agreement to be executed for a work should be comprehensive enough to include all the incidental items that are essential for the proper execution of work.
5	36	Public works	The Committee observes that the first tender work was not finalised within the firm period due to delay occured in the preparation and submission of LMR comparison statement resulted in huge lose to the exchequer to the tune of ₹1.56 Crore. Hence the Committee opines that it could not be condoned and recommends that disciplinary action should be taken against the officers responsible for the delay.
6	40	Public works	The Committee observes that double payment and weak internal control mechanism exists in Roads and Bridges wing of the Public Works Department that needs to be investigated thoroughly. The Committee directs the inspection wing of the Finance department to conduct an enquiry for such double payment that might have taken place in other PWD divisions. The Committee also directs the Public Works department to look into the matter seriously and the recurrences of such serious lapses should be avoided in future.

APPENDIX II

Notes Furnished By Government

RMT.ON RECOMMENDATION ON PARA 5.6 -Report of PAC (2014-16) ofor the year ended March 2015 (Economic Sector)- REGARDING

PARA 5.6 Report of PAC for year ended March 2015 Sector)

MoRTH is responsible primarly for development and maintenance of National disputed misrepresentation of Highways (NHs). The activities (2014-16) monitored by the Regional Office MoRTH in subsequent each State. The actual work of construction reimbursement of of NH is entrusted to State Government on involved by MoRTH. agency basis under the provisions of Article 258 of the Constitution of India for which Sl.NO.5,6,7,8,9,10 Economic nine percent agency charges are claimed by were arranged on the basis of State Government from MoRTH. The role of GO(Rt) No.1540/2011/PWI) State Government is confined mainly to dated 09.11.2011 charging to maintain, upgrade and improve the riding state exchequer. The works quality of existing NHs and carry out noted in Sl.No 15 was also ordinary annual repairs.

REPORT

Up to 3 1 s t March 2003, the State of Government was to initially expenditure on construction and maintenance of NHs and then get it 14,16 and 17 were arranged reimbursed from MoRTH. With effect From by Departmental officers due 1 April 2003, the system was changed to to Direct Payment Procedure (DPP) by MoRTH similar to calming situations for all NH works under the major head which 5054 and Special repair and periodical Government renewal / improvement of Riding Quality above. works under major head 3054. The transactions under DPP, therefore, do not 12 and 2014--2015 there had involve the State Government budgetary been sanction. For Ordinary Repairs (ORs) and deplorable conditions of NH Flood Damage Repairs (FDRs), the previous in the State. The protests system was continuing. As such, the NH were works undertaken as Ors and FDRs do not Execution of work through require prior sanction by MoRTH before established procedure in NH execution.

Scrutiny of records (between meaningful December 2011 and October 2015) in, five almost unfeasible. offices of NH wing of Pubic Works Department(PWD) revealed

The para relates to

are works as ordinary repairs and

RMT

First four works arranged following the issue GO(Rt)1139/2013/PWD incur dated 23.08.2013.

The works no.10,12,13, grave circumstances order cited

During the period 2011public protest mostly to restore the roads in a wav seemed

works(appendix 5.1) were executed during the period 2011 -12 and 201 4-I5 treating convened them as ORs, based on the sanctions of Secretary Government only and claimed 29.10.2011 and 09.11.2011 reimbursement from MoRTH (between to sort out the issue at hand. January 2012 and June 2014) projecting Decision emerged was to them as ORs. The M o R T H disallowed arrange unavoidable works as (between March 2012 and Sep 2014) the state works and later submit claim for reimbursement stating that the them to MoRTH to see if works executed were not ORs but Original reimbursement Works requiring prior sanction of MoRTH obtained. execution. The claims thus hefore disallowed amounted to 68.10 crore which claim without reimbusement. the State Government had to bear from its The State was not sure about own budgetary resources. Besides, the State getting the money back. At the also could not claim agency charges a outset the State was prepared mounting to 6.13 crore.

Thus, the department failed to reimbursement adhere to the guidelines of MoRTH while materialized. The making claim for reimburs ement o f was to make NH traffic expenditure incurred on the maintenance of worthy. The thinking was " if NHs and consequently burdening the State MoRTH reimburses, well and exchequer to the extent of 74.23 crore

Government replied that the bear the cost'. department had arranged the works due to poor condition of NHs in the State and not so in normal sense. It is inadequacy of fund / sanction from only an expectation coming Government of India it was also stated that to get the shape of reality. the works undertaken were ORs not Hence it is requested to drop requiring prior sanction from MoRTH. The the para. reply is not tenable as the works executed were not Ordinary Repair works but were Original Works as remarked by MoRTH scrutinizing the claim reimbursement, Further, these Original Works required prior sanction from MoRTH

A high level meeting bv Principal PWD

The MoRTH returned the to bear the cost if MoRTH had intention good" otherwise the state will

The disallowed amount is

SREEK ALA DET : 23271 / j. 2518465

PUBLIC WORKS (PS) DEPARTMENT REMEDIAL MEASURES TAKEN STATEMENT ON THE REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA FOR THE YEAR ENDED 31* MARCH 2015 (ECONOMIC SECTOR)

No	Recommendation	Remedial Measures Taken
No 5.10	Extra expenditure due to non-finalisation of tender within the firm period. Lapse of the department in adhering to PWD Manual instructions and Government orders regarding finalisation of tender within firm period resulted in avoidable financial implication of ₹1.56 crore. According to the provisions of Kerala PWD Manual, consideration of tenders and the decision thereon should be completed well before the date of expiry of the firm period noted in the tender so that the selection notice is sent on or before the expiry of the firm period. In case, selection notice is not issued before the expiry of the firm period, the bidder's offer would stand nullified automatically. In order to avoid such delays, Government had issued (May 2007) instructions prescribing time frame for completion of processing of tenders at various stages. Accordingly, the department shall place the tender before the Government within six weeks from the date of opening of tender followed by its submission before the Government Tender Committee (GTC) within seven days. After approval of proposal by GTC, order shall be issued within one week. The GOK, Finance Department had issued orders (January 2010) that in cases where tender amount is in excess of 10 per cent of Local Market Rate(LMR), justification should be	Improvements to Kodumba - Padalikkad Canal Rund Road
	submitted along with the tenders.	As per G.O (Rt) No. 519/2013/PWD dated 08.04.2013,

Sanction (AS) Administrative the 'Improvements to Kodumba - Padalikkadu Canal bund road from km 0/000 to 8/200' in Palakkad District at a cost of ₹5.10 crore. Based on Technical Sanction (TS) given by CE, the Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) invited (January 2012) pre-qualification-cum-tenders (PO) for works from eligible contractors, fixing date of opening as 6 March 2012. The firm period of tender was 120 days i.e. up to 3 July 2012. Of the two bids received, one was pre-qualified (2 April 2012) by the Chief Engineers' Committee. The SE opened (10 April 2012) the financial bid of the pre-qualified contractor whose quoted rate was 14.89 per cent above the estimate rate. After processing the tender, the department accepted (April 2013) the tender rate quoted by the contractor after delay of eight months. In the meantime, the firm period had expired due to which the contractor was not willing (May 2013) to take up the work.

After failing to award the work due to the contractor's unwillingness, the department re-tendered (July 2013) the work which evoked no response. However, citing urgency of the work, the department invited (November 2013) negotiated quotations from 'A' class registered contractors for the work at the same estimate rates in terms of instructions contained in PWD manual. The only quotation received from a contractor was at 48.50 per cent above the estimate rate which was accepted (May 2014) by the Department at 45.43 per cent above the estimate rate as recommended by the Committee of Secretaries. The work was awarded (May 2014) to the contractor for ₹7.24 crore. The work which was scheduled for completion by May 2015 had been extended up to February 2016. An amount of ₹5.05

was accepted at 14.89% above estimate rate (Revised SOR 2010). But the firm period of the work was expired and the contractor was not willing to extend the firm period and to take up the work. The work was re-tendered by the Superintending Engineer but there was no response from contractors. Meantime schedule of rates was revised twice ie., SOR 2012 and DSR 2013. Considering the delay on revising the estimate based on prevailing SOR and poor response from bidders, negotiated quotations were invited and the quotation received from M/s. P.G Construction, Mezhathur, Thrithala, Palakkad was accepted by Government @ 45.43% above estimate rate vide G.O (Rr) No. 370/2014/PWD dated 04.03.2014.

Audit observes that though the tenders were opened on 06.03.2012, the Superintending Engineer furnished LMR justification only on 03.12.2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by Superintending Engineer resulted in delayed approval of tender by the Government. The LMR justification (December 2012) was 43.65 per cent above estimate rate. If the tender had been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹ 5.68 crore as against agreed value of ₹7.24 crore.

The first tender for the work in favour of M/s. P.K. Construction Company @ 14.89% above estimate rate was not finalized within the firm period due to the delay occurred in the preparation and submission of LMR comparison statement by the Superintending Engineer as observed by the audit. But it may be noted that the LMR

crore had been paid for the work done till September 2015.

Audit scrutiny relating to the first tender revealed that though the tenders were opened on 6 March 2012, the SE had furnished LMR justification only on 3 December 2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by SE resulted in delayed approval of tender by PWD and GTC. The LMR justification (December 2012) was 43.65 per cent above estimate rate. Audit observed that had the tender been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹5.68 crore as against agreed value of ₹7.24 crore.

On this being pointed out, the SE stated (August 2014) that the delay in forwarding tenders to PWD was due to the delayed response of the first contractor to negotiations. The reply was not tenable due to the reason that had the SE prepared LMR justification soon after the opening of financial bid, it would have been evident that the tender excess of 14.89 percent above the Estimated Probable Amount of Contract offered by the first contractor was far below the LMR (December 2012) of 43.65 per cent. Thus, the non-approval of the first tender by the department within the firm period due to non-preparation of LMR in time and delay in submission of tender documents adhering to the time schedules as per guidelines resulted in avoidable financial implication of ₹1.56 crore which call for fixing of responsibility of the officials at fault for the inordinate delay in finalising the tender and initiate appropriate action against them.

comparison statement was prepared manually by the Assistant Engineer at the section office level, then it is scrutinized by the Assistant Executive Engineer at Sub Division level. Executive Engineer at Division level. Superintending Engineer at Circle Level and then by the Chief Engineer before submitting it to Government. For speedy preparation of LMR justification estimate, PWD started publication of those rates in the website from 01.07.2014. The above work was tendered and LMR preparation was done prior to this period. Considering time delay caused due to routine works of field staff and to avoid recurrence of such incidents in future, PWD has now modernized the system of LMR justification estimate through "PRICE" Software". The time delay associated with the preparation of LMR comparison statement could be eliminated by the implementation of the new system.

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GOVERNMENT OF KERALA PUBLIC WORKS (D) DEPARTMENT

Remedial Measures Taken Statement on Para no. 5.5.5.7.5.8.5.9 &5.11 in the Report of the Comptroller and Auditor General of India on economic Sector for the year ended in March 2015

erided in March 2015						
Para No.	Recommendation	Action Taken by the Government				
5.5	Further, as per Clause 3(b) of NIT, the overall percentage rate accepted and specified in the agreement shall not be varied on any account whatsoever. The Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) had awarded (April 2009) the work "construction of bridge at Varamkadavu in Chelora Grama Panchayat in Kannur district (balance work)" to a contractor at 21.80 percent below estimated amount of Rs. 2.64 Crore.	The original estimate of work of Varamkadavu bridge consists of bridge proper which includes the construction of bridge structure such as foundation sub 'structure and superstructure based on the detailed design after conducting sub soil investigation only at abutment and pier points. No sub soil investigation was conducted along approach connections which is passing through waterlogged marshy areas and also through places submerging during tidal effects. The original Administrative Sanction was issued based on a rough cost estimate for the work without any detailed sub soil investigations done at site. So the Administrative Sanction amount was not sufficient to cover all the provisions for the construction of bridge proper, whose estimate was as per design prepared after provisions for the construction of approach roads. So only minimum provision of earth filling for forming approach roads based on tape measurements were given in the original estimate. The first estimate submitted was for the construction of the bridge and its approaches that got TS only for Rs.225.50 Lakh, which was not sufficient for the complete raising of				

The items of work included in the original agreement provision for the improvement of the approach road schedule for formation of approach roads to the bridge was increased by giving proper provisions like structure which was completed in March 2005 consisted increasing the height of the embankment over the of earthwork for forming high embankment for approach MFL and also by providing more width to the roads and ground improvement works using non-woven embankment to enable smooth and safe flow of traffic geo - textiles, woven geo - textiles and Pre -fabricated over the embankment. Thus the quantity of the earth Vertical Drain (PVD).

During execution of the work, these items were treated approach road on Varam side to a further 500m. This as extra items and their rates enhanced, by executing has led to an increase in quantity of 12600m 3 Viz: (November 2009/March 20101 agreements by the SE with the contractor. The up to the earlier submitted quantity of 21254 m3 and: contractor had agreed to execute these extra items at the final quantity in that estimate was arrived to be 21.80 per cents below estimate rate. The work was 33854 m3 that was rounded to 34000 in the estimate. completed in May 2011. The contractor was paid an When the K.S.C.C. failed to form approach road amount of Rs.3.81 Crore in five part bills as of December without doing any ground improvement works at the 2015.

Audit scrutiny revealed that:

- The above items of work were expressly mentioned improvement works using prefabricated vertical. in the Agreement executed by the contractor for the drains (PVD) with Geo textiles in order to accelerate balance work. So as per clause 23 (c) of NIT they could the primary settlement due to consolidation process. not be treated as extra items. However, in violation of dissipating pore water pressure from clayer strata this provision, SE had treated them as extra items and and thereby attaining rapid strength increase in the revised (November 2009/March 2010) their rates.
- Kannur (EE) did not apply tender rebate from the ground level will start only after preloading over the payments made to the contractor on the extra items, embankment, portion, and the settlements were even though it was agreed in the supplementary measured using settlement gauges fixed at interval agreements executed. This was in violation of the rules installed at the ground level. The design of the ground! on application of overall tender percentage contained in improvement is based on achieving 90% consolidation. the NIT.

The above violations resulted in inadmissible payment quantity of earth filling could be known only after of Rs.1.09Crore to the contractor, which amounted to completion of the settlement after a time interval and undue benefit extended to him, as shown in the table completion of the final embankment construction. below.

was increased to 21254 m3. Further during their progress of the work, it was decided to extend the Supplementary $1 \times 500 \times (13+8)/2 \times 2.4 = 12600 \text{m} 3$. This was added site, the opinion of Geo-tech expert was sought. He studied the sub soil conditions at site which consists of deep layer of soft, highly compressible clay with: high water content and proposed ground. sub soil. The initial levels were taken before commencing the ground improvement works. The: The Executive Engineer, PWD Roads division, settlement of the clavey sub soil underneath the in the time prescribed and the final settlement is: measured using settlement gauges. So the final This could not be assessed by while estimation. The

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Description of Item in Agreement	Upito date quantity executed	Agreed rate after applying tender rebate	Revised rate used for payment without tender rebate,	Undue benefit to the contractor (in Rs.)
Earth work Itilling with Itill	54174.38 m2	1516/10 m2 (1939, less 21.80%)	2,424/10 m2	49,19.033.70
Providing and laying non-woven geo - textile fabric	6332.08 m2	55.91/ m2 (71.5, less 21.80%)	88/ m2	2,03,196.45
Providing and laying non-woven geo - textile fabric	4380.78 lm2	59.82/ m2 (76.5. less 21.80%)	89.78/ m2	1.31.248.17
Providing and laying non-woven geo - textile fabric under water	800 m2	55.91/ m2 (71.5, less 21.80%)	88/ m2	25672
Providing and installing flexible pre- fabricated vertical drain	130392. 10 m2	66.47/ m (85, less 21.80%)	109.92/ m2	56,65.536.75
Total undue	benefit to ti	he contracto	1	09.44,687.07

behaviour of the clayey strata is highly complex in nature and depends on the properties of the clayey soil which varies from point to point. So study of the extract quantity of the settlement and behaviour of the clay underneath the fomation and its design will take more time and involves serious task for conducting detailed study of the various properties of the clayey strata on the entire formation areas.

Later during execution when the case of heaving of soil occurred it was decided to opt for PVD installation on the approaches. This required compaction of the earth fill to accelerate the primary settlement by dissipating pore water pressure from clayey strata through the PVD. This led to unaccounted sinkage of the earth that was filled for embankment formation. This could not be accounted through level calculation, as the sinkage was happening exorbitantly to drain out the water from the clay beneath. So in order to account for this, some sinkage quantities were included in the estimate. Due to this natural phenomena the contractor was not willing to continue with the work unless his desired compensation was given.

The approach road alignment is through marshy waterlogged portions having tidal effects. So while progress in the earth filling, there was loss of earth dumped filling, due to initial mixing with loose marshy top clay layer and losses due to tidal effect and this quantity was calculated as 25%. The loss of dumped earth on sides could not be stopped as it was not possible to do side protection works at the toe of embankments before attaining the final settlement. This: 25% loss in quantity was approved by Chief Engineer.

when the matter was pointed out (June 2013). Government replied (October 2014) as under:

2013) The Government sanctioned 25% increase in rate for earth filling after Chief Engineer recommended the

*revision of rates in earth work was in lieu of wastage of earth during execution. Further, the estimate rate for earth work was adopted without applying tender rebate, as it was an extra item and.

**the ground improvement materials viz. geo-textiles and PVD were brought from abroad and that an approximate rate taken from earlier executed work was adopted in the estimate. But, when order was placed for these materials at the time of execution, their rates had increased. Further, these were not items included in the Schedule of rates, but were market rate components for which tender variation was not applied.

The reply of Government was not tenable due to the following reasons:-

· Earthwork for formation of approach roads was an litem expressly provided in the original agreement schedule Hence, revision of its rate by treating it as an extra item was a violation of the condition of NIT. Moreover, the contractor had clearly agreed in the supplementary agreement that the tender rebate of 21.80-per cent was applicable for this extra item.

**Similarly, the items for ground improvement work were also expressly provided for in the schedule of the balance work.So, the contractor had quoted his rates accordingly with tender rebate. Hence, classifying them as extra items of work and enhancing their rates was a clear violation of the NIT provision.

contractor to ensure availability of materials before put forward by quoting his rates, Hence, the contractor was not eligible the soil investigation team in their report was for for rate revision on account of non-aval hility of

revised rate in lieu of wastage of earth during execution. The 25% excess rate was allowed as perorder No.CE/R&B/KNR/ 16956/2002 dated, 22.10.2009 and in this order it was sanctioned as extra item. As per order No CE/R&B/KNR/ 16956/2002 dated. 09.10.2009 of Chief Engineer(copy enclosed) it was ordered to give estimate rate for all extra items. Hence the original rate of Rs. 1939/ 10m2 was revised to Rs.2424/ 10m3 and this was in order. Meanwhile the excess rate increase by 25% of its application without applying tender rebate was as per the order of Government approved after recommendation of Chief Engineer.

The reasons that attributed for the enhancement of the quantities of earth filling is different in each situation starting from the original estimate preparation till the end of final formation of embankment. There is no loss to Government due to this, as correct stable and more advanced technology which was also a new technology in the stage PVD was adopted in the construction. An alternative to this method is by increasing the length of bridge spaning over the entire water logged marshy portions which will be more expensive than the ground improvement works. At the time of execution the availability of good earth become a serious issue due to high public protest against cutting hill slopes garden lands etc. Hence it became a difficult task for the contractor to obtain good quality and the source mentioned, in the sanctioned estimate has to be changed and additional conveyance even from remote places, were sought

Hence the earth filling was approved by Chief Further, as per NIT, it was the duty of the Engineer as extra items. The earlier proposal that was driving the PVD at a spacing of 1 3m length wise and

materials and variation in market rates. In this case also, 1.12 in breadth wise. But even after the installation the department failed to avail the benefit of tender of the same, slight sinkage was found in the rebate agreed by the contractor. Thus, the action of the embankment. Hence the site was inspected by the Department in enhancing the rates of items expressly Superintending Engineer and he proposed to provide mentioned in the agreement schedule by treating them with closer intervals of PVD of the range of 60 to as extra items in violation of the NIT provisions and 70cm. It was also verified by him that the actual non-availability of agreed tender rebate on those items depth of the PVD driven was in the range of 14m than resulted in extending an undue benefit of Rs.1.09 Crore to the contractor.

clearly stated in the SE's certificate and the CE'si order. These variations during the execution have led to the abnormal deviation from the estimate quantity. Moreover the rates of the PVD and Geotextiles were! got approved by the Chief Engineer as per order! No.CE/R&B/KNR/16956/02 dated 18/03/2010(copy enclosed). In the order it was clearly stated that these may be treated as extra items. Moreover as per an earlier order of the same number and dated: 09/10/2009, it was stated that the extra items can be given market rate without applying the tender below. which was as per the tender conditions, PVD technology had just arrived in India during those times and there were not many agencies that dealt with this. The materials for the same were to be imported from foreign countries. Hence the rates for the same depended on the daily variations of their dollar rate of rupee rate. Hence when the quotation was called for the PVD, only one agency had quoted with an acceptable rate. Hence the rate of this item could only be taken as market rate, for which the item was made, as extra item, since the market rate varied exorbitantly. The quotation rate was approved as said: earlier, by the Chief Engineer.

The close watching of the site execution of PVD driving has also resulted in informing in the higher authority of the insufficient spacing and thus changing the pacing for better result. Considering, all the above reasons, the audit objection may please be dropped.

Regarding the work without tender and providing! The old Menonpara bridge was collapsed on undue benefit to contractor.

unwarranted revision of agreed rates by PWD extended by the people's representatives and the CE. But undue benefit of Rs.92.32 lakh to the contractor.

As per para 2003 of Kerala Public Works Department construction of diversion road through the river bed. Manual, works shall normally be awarded through open Then the reconstruction of the collapsed bridge was tenders after getting administrative and technical thought of by the Government. Considering the sanction and ensuring provisions of funds in the Budget. 'demand of the public and urgency pointed out by the)

2012) reconstruction of the partially collapsed; under PWD, without tender. No other bad intentions Menonpara bridge across Korayar river in Nattukal behind this act of the Government and it was done in Velanthavalam State Highway in Roads Division: good faith. Palakkad through M/s. Kerala State Construction Corporation Limited (KSCC) without inviting tender at an As per estimate the depth of pile to be driven is only estimated cost of Rs.10.15 crore to avoid delay in 9.00m to 10m. But as per the site condition the hard tendering process.

Circle, Kozhikode (SE), awarded (January 2013) the work authority. The abutment and pier positions fixed now to KSCC at a cost of Rs.9.31 Crore. The site was handed is not at the place were bore hole details had been over (January 2013) to the contractor for completion of taken at investigation time. Proposal was for four 20M work in 18 months. PWD revised (March 2013) the spans during investigation. But as per estimate it is sanction to Rs.18.30 Crore after including road only three 25.32m spans. Hence the positions of improvement work of nine kms in place of three kms substructure got changed. The additional depth of originally estimated. The work was completed in May piles may lead to additional financial commitment 2014. The contractor was paid Rs.17.49 crore up to June, also. Revised Estimate amounting to Rs.1830 Lakhs 2015.

One of the items of work included in the agreement schedule for the construction of bridge was 'Boring Due to scarcity of good river sand M.Sand is used for through all classes of soil 'for cast in situ bored piles, pile concreting otherwise work will be delayed and will with concrete mix M25, 1.20 metre internal diameter have to be stopped. Also, due to oversight rate, anchoring of pile in rock for a minimum depth of 50 provided in the approved data of boring (Item No.4): centimeters etc. The work involved construction of 28. Higher charges of pilling rig and bentonite pump with. piles, 12 piles for piers each having an average depth of accessories are wrongly entered as 275 per hour

26.08.2010. At this juncture the public made hue and cry to reconstruct the bridge and facilitate smooth The exectuion of work without tender process and traffic. The matter was taken up with the Government considering the urgency in restoring the traffic, Government accorded Administrative Sanction for the people's representatives, it was decided to entrust the Secretay to Government, PWD sanctioned (December work to the KSCC which is a Government owned PSU

rock strata had been found only at the depth of 19.00mbelow the bed level. Hence fresh bore hole The Superintending Engineer (Roads and Bridges), Northi details have been taken as directed by the higher sanctioned Government vide G.O(Rt)No.386/2013/PWD dated, 19-3-2013.

nine metre and 16 piles for abutment each having an instead of 5126 per hour in the SOR 2012 (MORTH). average depth of 10 metre. The total length of piles was As the above work was awarded not on the bask of estimated to be 270 in and the agreed rate was competitive tender and there is no contractor's profit Rs.16,344 per metre. However, during actual execution, allowed to the contractor, the data for the above item. Chief Engineer PWD Roads and Bridges (CE) revised was submitted to the Chief Engineer and the rate is (May 2013) the rate of the above item from Rs.16,344 to got approved. Rs.34,017 per metre citing reasons such as increase in average depth of piles from nine to 19 in due to non the above facts may kindly be got convinced and the availability of hard rock at the estimated depth, error in objection raised may kindly be dropped. calculation of hire charges for piling plant, and use of M: Sand due to scarcity of river sand. CE sanctioned (May-2013) the rate of above item as 'extra item' and SE' executed (June 2014) a Supplementary Agreement for a total length of 549.85 m. An amount of Rs.1.87 Crore was paid (July 2014) to the contractor for the 'extraitem'

Audit scrutiny (February 2014) revealed the following:

*The bridge had collapsed in August 2010 and the Government decided to take up re-construction work only after a lapse, of two-and-a-half years of collapse. Awarding of work to KSCC only without inviting open tenders after two and a-half years was lacking not only in justification but it was also against manual provisions which advocate transparency in selection of bidders through open competition.

- * Items of work which do not form part of the original. Agreement Schedule are treated as Extra items". In this: case, the item "boring cast in situ piles", was already existing in the Agreement Schedule. As such, it cannot be subsequently treated as an "extra item".
- The contractor is expected, before quoting his rates, to inspect the site of the proposed work and assess their availability of specified materials. He is also expected to get himself acquainted with the sanctioned estimate approved plans and drawings. Once his rates have been

accepted and agreement finalized and signed, he is bound by the same and cannot claim its revision on grounds of errors in sanctioned estimates, un-availability or scarce availability of the specified materials etc.

* In the name of approving an 'extra item", the Department has resorted to revision of rates and specifications, after the award of work, on grounds of 'scarce availability of riversand', "error in calculation of hire charges of piling plant" and made an exua payment of Rs.97.17 lakh to KSCC. The action of the department was wrong as the ground cited for their action were not valid.

Thus, undue revision of reate resulted in extra payment of Rs.97.17lakh to the contractor

Government replied (October 2015) that the work was entrusted to KSCC to avoid delay as the tendering procedure would have taken long time Further, the rates for piling were revised as the depth of piling work had to be increased from 270 m to 549 m during execution. Besides due to non availability of good quality of river sand, the M sand was substituted and that there was some mistake in preparation of data.

The reply of the Government was not acceptable because the period of two and a half years between the date of collapse of bridge and award of work for reconstruction was reasonably Adequate for completing all open tender formalities including invitation of competitive tenders so that the work could be awarded without compromising transparency instead of giving to KSCC only, further, the revision of rates for piling was also not acceptable as the rate agreed by the contractor for piling was per metre and not for casting entire pile for a

specific length. Besides, rate once concluded in the agreement signed by both the parties. was not required to be revised.

Thus, unwarranted revision of rate resulted in extension of undue benefit of Rs.92.32 lakh to the sub contractor of KSCC.

piles from bridgework

bridge from the impact collision with bargers even the pier of the bridge came up during the execution of though bridge did not have scope for navigation of work in view of the alarming incidents of vessel hits to heavy vessels resulting in wasteful expenditure of Venduruthy Bridge Kochi in the past. The most Rs.3.12 Crore.

of the construction of Thadikkakadavu Bridge across protect the bridges from vessel impact with pier Periyar river by Roads division. Emakulam for Rs.27.51 protection system. Hence a proposal for providing crore. The site was handed over (June 2012) to the Fender Piles was included and the estimate for the contractor for completion of work in 18 months work had been revised. It is also seen from report that (December 2013). The work remained incomplete (July the work for the bridge was nearing completion during 2015) and the contractor had been paid Rs.15.71 crore that lime. The design for the entire bridge had been (July 2015).

bored cast insitu piles, for which 2,650 metres of piles at bridge was nearing completion, it was necessary to a unit rate of Rs.27,056 per metre were planned. During submit the proposal for Fender Piles urgently so that it execution, the length of piles was increased to 3,220 could be constructed immediately after the piling of metres of which 729.79 metres were provided as tender the bridge, if the proposal is approved. It is also seen piles in a separate pile group, upstream and reported that since Fender Piles are not an integrated downstream of the bridge. The department stated that part of the bridge structure and as it is constructed the fender piles were required to protect the bridge from 15m away from the pile cap of the bridge structure, the impact of collision from heavily loaded cargo boats the design of the Fender Piles was made by a reputed moving from Nedumbassery airport to Kochi city. The structural consultant. The drawing is approved by the cost of construction of tender piles was Rs.3.12 crore

Wasteful Expenditure on construction of tender in the original design for the construction of Thadikkaddavu Bridge, there was no provision for Fender Piles. It is reported by the then officers that Department constructed tender piles for protecting a the proposal for providing Fender Piles for protecting convenient pier protection system used all over the world is the Fender Piles. With the increasing volume The Public Works Department (PWD) awarded the work of water transport, it was a common practice to completed by DRIO and it is seen reported that considering the volume of work of design of other The bridge was designed to rest on a foundation of bridges pending in DRIQ; and as piling work for the Technical Sanction Authority for the work and the proposal is seen included in the revised estimate for

the work. In view of the above facts, the audit objection may please be dropped.

Audit observed that though the original design of the bridge was approved (March 2012) by the Design. Research and Investigation Quality Control Wing (DRIQ). under the control of Chief Engineer. (Designs) as stipulated in the PWD manual, the design of fender piles was approved (November 2012) by the CE himself, which means that the DRIQ was not involved in the change of design of fender piles.

It was further noticed that there was no specific request from various stakeholders/departments (KSINC, SWTD, IND etc.) regarding provision for fender piles. Moreover, the route identified for connecting Nedumbassery airport with Kochi city passes through the southern arm of river Periyar, whereas the bridge was constructed on the northern arm as shown in the sketch attached.

Further, there was no infrastructure for anchoring of cargo boats anywhere near the Nedumbassery airport. Therefore, the construction of fender piles by adducing to safety concerns from barges/cargo boats was not tenable.

Audit also observed that the fender piles were made of concrete with no impact absorbing quality to provide protection either to the bridge structure or to the vessels in the event of a collision. Further, the top levelof fender piles constructed was much below the Maximum Flood Level (MFL) of the river. The fender piles would not be visible during flood, making it likely to cause damage to the piers of the bridge as well as the barges. Thus, the purpose of protecting the piers with the help of fenders was doubtful.

On being asked, the Secretary, PWD replied (October 2015) that on account of concerns of polluting the dinnking vater projects at Chowara and Aluva Cochin

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International Airport Limited (CIAL) shelved a proposal to develop the Southern branch of Perivar river as all waterway connecting CIAL to Kochi Seaport for cargo movement. An alternative proposal of developing the northern branch was under consideration of CIAL, and hence, the fender piles were constructed in anticipation of movement of heavy cargo vessels through the same.

The reply was not tenable in view of the confirmation provided by krigation Department that there were no plans of developing the Northern branch of Perivar River over which the Thadikkakadavu bridge is constructed as a waterway connecting CIAL with the Kochi Seaport. trrigation Department further confirmed that there were: bottlenecks for large scale cargo movement from CIAL to Kochi city/seaport through the Northern branch, like insufficient vertical clearance of existing cross structures, insufficient width and depth in a five km stretch between CIAL and Chengalthode.

Thus, the decision to change the designs for providing fender piles was taken without assessing actual requirement and approval of the DRIO Board which led to wasteful expenditure of Rs. 3.12 crore on construction of fender oiles.

Avoidable payment of sinking of wells for The detailed estimate of all bridge works under audit foundation of four bridges.

and specification item No.701 to 706 of chapter XV Inj Separate payment amounting to Rs 2.28 Crore was the PWD data book were approved for well sinking of made to the contractors by PWD outside the agreed rate abutment and piers of the bridges. The specification for removing obstacles encountered during sinking of lof these Items is given here under. wells for foundation of four bridges.

Sinking well in all soils other than rock to lines and i The special conditions or contract stipulate that the rate levels ad plumb by scooping out from inside and quoted shall be inclusive of all the operations below the staining including use of dredgers or any contemplated in the specification and tender schedule other appliance hire and labour for knetledge, jetting,

enquiry were prepared adopting PWD standard data!

Superintendent Engineer, Roads and Bridges, Northiltem 701 to 706 includes provision for removal of all Circle, Kozhikode (SE), had awarded - (March 2011 to obstacles except the following. July 2012) four bridge works under PWD Roads Division. Manjeri at an estimated cost of Rs.24.65 crore in 1. Boulders more than 40dm3 and logs of wood of Malappuram district. As per the agreement schedule one more than 100dm3 in size which come under the of the items of work was sinking of reinforced cement cutting edge and inside the well and which have to be concrete circular well in all classes of soil other than cut down or broken into small pieces for removal, rock. The sinking process includes scooping of earth to line. level and plumb from inside and below steining 2. In the case of obstacles mentioned under note (1) with dredgers and other appliances including removal of extra shall be paid only for cutting down or breaking obstacles. The EE made extra payments of Rs.2.28 crore the obstacles into small pieces. to the contractors of four bridge works towards charges for cutting and breaking down boulders having the size of more than 40 dm3 during sinking of wells and for seating of wells as shown below:

chapter XV of standard data book, the size of the obstacles are clearly mentioned that the unit rate for

It is very clear from the specification and general note given in the standard data book that the rate for cutting down obstacles of size above 40dm3, wooden logs, of size above 100dm3 and sinking well in rocks have not been included in item No.701 to 706 of well sinking. And sinking wells through rock if any sinking encountered during well simultaneously together with well sinking operation. otherwise the contractor cannot continue well sinking; operation and complete the work within time as this item of work is beyond scope of approved specification and terms of agreement provisions. This general note 5 in Chapter XV of standard data book was included in the agreement schedule from long back ago and all contractors are well aware about this item and they had considered this during the time of tender quoting. Copies of the agreement schedule of bridges constructed during the period of 2013 isenclosed.

· Details of works showing extra payments made

Si No	Name of work		Particulars of estimated cost at extra payments for well sinking				
,	(item as per agreement)		Estimate Extra d payment cost (Rs. (Rs.in in lakh) lakh)		Percentage of extra payment on		
, !	i j	ļ			estimated cost)		
1	Constructi on of Mythrakad lavu bridge	5	6.36	96.12	1511 32		
	Constructi on of Vallipada i m Alungalka davu bridge	6.7	15.1	5 63.49	419.08		
3	constructi on of Thayyılaka davu bridge	67	11.5	30	259 29		

The quantity of nature of work to be done of such items cannot be assessed while preparing either the estimate or agreement schedule since these items are invisible. Lump-sum provision are included in the sanctioned estimate and these items are executed on actual DLR basis by the department as and when encountered during well sinking. Approved detailed estimate and other design details etc are verified by the contractors and they are well known about these items of removal of obstacles other than included in well sinking items and considering this while quoting rate for the tender. No contractor's profit or tender variations are allowed for executing these items of work. Hence the contractor has no monitory benefit of implementing these items and has not deviated/violated the agreed specifications.

Approved design of bridges insists seating of well foundation upon a levelled hard rock strata and well kerbes are to be anchored to a minimum 60 cm depth into hard rock. Undulated, soft and unweathered top layers of rock formations found in river beds are to be cut and removed to seat the well foundations as insisted in design. It is very clear from the agreed specification of well sinking items that the rate for cutting and removing rock has not been included in these items and these quite essential and inevitable items are to be carried out by the department separately on actual DLR basis simultaneously together with well sinking operation. Though the presence of obstacle can be noticed on core boring during sub soil investigation, exact Number, size quantity and nature of work to be carried out for cutting and breaking down into pieces of these invisible obstacles can not be assessed for including the sanctioned estimate. Hence these items are being executed on actual DLR basis as and when encountered during well sinking. The work actually-



As can be seen from the above table, the percentage of extra payment comes to nearly four times the estimated cost of the agreed item of well sinking and this payment was made without following the usual tender procedure.

in this connection, Audit observed the following:

All works except the extra items were put to tender on percentage one basis' in which the quoted rate was inclusive of all operations contemplated in the specification and tender schedules including incidentals. The workable rate quoted by the bidder was inclusive of charges for removing boulders irrespective of their size. Therefore, the payment for cutting and breaking down boulders of more than 40 cm3size during sinking of abutments and pier wells and for sealing of wells on base, over and above the estimated cost was contrary to the provisions contained in the agreement.

Secretary. PWD stated (October 2015) that the approved design of bridges insisted seating of well foundation upon a leveled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rock and that in order to seat the well foundations, the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the above rock cutting works were not included in the lagreed specification. Further, the reply stated that the general notice in Standard Data Book.

done are often exceeded from nominal lump sum provision as there are limitations to include lump sum provision in sanctioned estimate. After preparing the DLR, it is submitted to higher authorities for according sanction. Revised estimate incorporating all the deviated items are prepared and got approved and regularized from the competent authorities before final payment.

After adopting the MORTH data in Kerala PWD, this DLR item is changed to rate for sinking in soft rock and rate for sinking in hard rock as per MORTH specification.

In view of the above facts the audit objection may please be dropped.

permitted the payment for cutting down boulders of size above 40cm3 and wooden logs of size above 100 cm3 encountered during well sinking.

The reply of the Government was not tenable as the quoted rate was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The specification in the tender schedule and agreement schedule for the item of well sinking included removal of obstacles. As notes in the Standard Datal book were not made part of the agreements, extrapayment for cutting down boulders of size above 40 cm3 was not permissible. Thus, due to its failure to adhere to the specifications in the tender schedules the Department had extended undue benefit of Rs.2.28 crore to the contractors.

5 1 1 Double payment to the contractor for same work. The payment of actual on bridge works was resorted. through Hand Receipts.

the expenditure of his own moncy

Failure to exercise required verification by PWD resulted the Chief Engineer through proper channel and on the the double payment for executing an item of work in the basis of the proceedings issued by the Chief Engineer; construction of Mythrakkadavu bridge across river an HR would be prepared and recorded in the M Book. Chaliyar in Malappuram district.

every Government servant who incurs or authorizes the cannot be used for this purpose and HR payment is incurring of any expenditure from public funds should resorted to. The genuineness of the claim can be see that the expenditure should not be prima facie more ensured only by the Assistant Engineer in such HR than the occasion demands. He is expected to exercise claims. the same diligence and care in respect of all!

on the basis of provision in the Data Book. The DLR prepared by the Assistant Engineer was submitted to This HR is presented at the Division office for payment. Since the item is not included in the Article 40 (b) of the Kerala Financial Code provides that Agreement Schedule(copy enclosed). CC Bill forms.

expenditure from public moneys under his control as Iti. On 31.03.2014 2 Nos. of HR for the actual DLRs for person of ordinary prudence would exercise in respect of cutting and breaking down boulders and wooden logs more than 40 dm3 in size for an amount of

Rs.14.92,714/- and Rs. 40,19,740/- were submitted Superintending Engineer. Roads&Bridges, North Circle, by the PWD Bridges Sub division, Manjeri to the Calicut (SE) had executed an agreement (March 2011) Executive Engineer, Manjeri as per No. D2-328/2002 with Shri.V.P.Mohammed Ayub, contractor, Erahikode, dated 31.03.2014. These HRs were supported by 2 Edavana, Malappuram District, for the construction of sanction letters of the Chief Engineer Mythrakadavu bridge across river Chaliyar Malappuram District. The work was executed by the Rs.14.92.714.50/-) and No.CE/R&B/MNI/9986/2009 Executive Engineer, Roads Division, Manjeri (EE).

Audit of vouchers (July 2015) of Public Works 917 dated 31.03.2014. There are eight constituency Department transactions (PWD) in the office of the EE areas coming under Bridges Section. Manieri. The revealed that the EE had made (July 2015) a payment of staff under Manjeri Bridges Section is very limited Rs.14.93 lakh through a Hand Receipt (HR) prepared by with 2 Overseers and Assistant Engineer. Also the the Assistant Engineer, Bridges Section, Manjeri (AEE) number of works are very high during that period (7. and verified by the Assistant Executive Engineer, ongoing works) and the whole works are scattered! Bridges Sub Division, Manjeri (AEE) for an item of work through out the nook and corner of Malappuram "cutting and breaking into small pieces of boulders size district. Hence supervising and monitoring under this during sinking of wells and seating of well pier-2". The Section and traveling from one site to another will payment recorded at page 35 of Measurement Book require a lot of time. So as a result the time available No.7732, was made through the Bill Discounting System for the preparation of bills and the scrutiny of the (BDS) and adjusted in the Monthly Account of July 2015 same was done in an urgent manner which lead to the through a Transfer Entry (July 2015). The EE made (July duplication of the payments which was later 2015) payment based on the sanction accorded in corrected. respect of an item of work in the Daily Labour Report by the Chief Engineer, Roads & Bridges (CE), As the Bill is prepared by a responsible Assistant

As the sanction was more than two years old, a further previous payment is seen in the audit file. The scrutiny in Audit revealed that a total amount of detailed scrutiny of HR payment would be conducted Rs.55.12 lakh (including the amount of Rs. 14.93 lakh at the time of final payment in work slip. Hence the related to the work) was paid during July 2015 for amount of Rs:55,12,454/- was passed under good executing the item and that the amount of Rs 14.93 lakh faith from the Division office in June 2014, it is true, had already been paid earlier during May 2013 (CBV 150) that the work register was not and action in the of May 2013) based on the same sanction for executing Division for a long period. But a new Register was: the same item. Both the payments, i.e. May 2013 and opened in 2014-15 taken to the inspection furnish the July 2015 were made through HR prepared by the then details of previous payments on all ongoing works. AE and ventied by the then AEE and recorded on Page 6' After the inspection of Accountant General the work

in CE/R&B/MNI/9986/09 dated 22.03.2014 for Rs. 40.19.740/-). The bill received from the Sub division is registered as Bill No.

Engineer who Supervised the work the genuineness was not suspected. More over no evidence of Register is maintained properly. The miscellaneous sanction register is also maintained.

Further Audit investigation revealed that only one Dally During the special inspection conducted by the Labour Report (DLR) was sanctioned in the Divisional Accountant General in December 2015, the duplication records to support the payment of Rs.14.93 lakh (May in payment was detected. Immediately the Division 2013). No DLR was available to support the second issued order to recover the excess amount paid as per payment of July 2015 which confirmed that payment of Order No.E4/A3/3255/2011 dated 31.12.2015 and the Rs.14.93 lakh made to the contractor during July 2015 contractor remitted the excess payment of Rs. through the BDS was double payment. On this being 14,92,714, on the same day. Hence no financial loss is pointed out by Audit (December 2015), the EE admitted sustained by Government at present. At that time the the double payment and got the amount remitted from Contractor had completed 85% of work and an the contractor in December 2015.

EE. further revealed that the office was neither still pending for payment. maintaining nor monitoring the requisite Control Registers as stipulated in Kerala Public Works Account Normally all major bridge Works require revised Code Para No.10.5 (Works Abstract), para Nos. 10.6 and estimate. At the time of preparation of Revised 5.3.3 (Works register), Para No.10.7 (Contractors' Estimate the actual paid through HR would also be Ledder) and Para No.22,2,7 (Miscellaneous Sanction included and the duplicate payment would be surely Register). The AE was, thus, not exercising any detected. The detailed Scrutiny on all payments would preliminary checks on the contractors claims. Thus, be conducted at the time of final payment. Hence the disregard for the mandatory checks of consulting discrepancy will surely be detected at the time of final previous records by the EE led to double payment of payment. Now, the registers are maintained properly Rs.14.93 lakh for the same work.

Further, the double payment of July 2015 was made through the newly introduced Bill Discounting System With regard to this suggestion to modify the software (BDS). The Finance Department (FD) transfers the EMLI, the FD has been requested to do the same in details of only those Bills into the BDS database which accordance with the recommendation of the CGAG, in are processed and recommended by the CE in EMULIVIEW of the above facts, the audit objection may be software and for which the FD had agreed to issue a dropped. letter of Credit (LoC). The fact that the LoC for the payment of Rs.14.93 lakh was issued by the FD in July .2015 and that the payment of July 2015 occurred through BDS, confirmed that the claim of the contractor was processed and recommended throughout the entire chain of authorities from the AE level to the CE level and that none of the authorities could detect the double. payment being attempted. This revealed as under:

approximate amount of One Crore was to be billed. The completion and final payment was still pending at Audit of Internal Control Mechanism of the office of the that time. Now the final bill amount of Rs.1.84 Crore is

and will be more vigilant in auditing work bills.

* weak Internal Control Mechanism in the Roads and Bridges wing of the PWD;

*recovery of double payment in this case was at the instance of Audit but no action has been taken against the officials responsible for this. Besides, the present system gives scope for such double payments escaping detection in future: and

*the software EMLI was not able to detect the fact that a Letter of Credit had already been generated against the same sanction at an earlier date.

In this respect, Audit recommends as under:

- The commission of double payment coupled with the weakness of the Internal Control Mechanism, of the Department requires thorough investigation, preferably by Vigilance authorities to pre-empt any intentional negligence/fraud.
- The software 'EML!' may be modified so that only one Letter of credit is generated against a sanction and any further attempt to generate Letter of Credit on the 'same sanction would be rejected by the system automatically;
- 3. The payment of huge amounts through HRs (KPW) Form 24), instead of the Forms KPW 22 (for making first and final payment to contractor) or KPW 23 (for making running payments), may be discouraged as the HRs lack the basic control measure; and accountability provisions as compared to Forms KPW 22 or 23 which help to present irregular payments.

During Exit Conference, the Chief Engineer stated that

this was the first instance and no other Case or double payment was currently known to the Department. As regards enquiry about such instances taken place in other Divisions also, the Secretary to Government stated that assurance could be furnished only after an investigation in the matter. Thus, thorough investigation is required in the matter to guard against the recurrence of such serious lapses – in future.

Seehaly

R. SREEKALA DEVI Special Secretary to Govt. Public Works Department Govt. Secretariat, Typen. Ph; 2327175, 2518465

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Attachington I - Related to Parall 28316

1400234/2017/OS-PWD

Office of the Cluck Engineer.

Mº CE/KWR\KMK\19329\5003

Dated 191 10,2009. menuquilmensvurut 1 sugbird & sback CWI The Chief Engineer

οI

from

Kozhikode. R&B North Cirole, the Superintending Engineer,

Chelora Grama Panchayat in Kannur district. Sab:- NABARD RIDF XII - Construction of bridge at Varanthadavu in

Refi. That office Letter No. DUZ/255/98 dated 15,09,2009

Auder the oncommuneces explained by you vide your letter ofted, the proposal

incorporating the item may be submitted immediately. also wassed (About 25% of carth as mentioned as cutte items). Mocessay data

ECCRIER ENGINEER Yours faithfully,

Copy to the Executive Engineer, Roads Division, Kannur

GW9-2017

Thiruvananthapuram. TI & seepng & speog OW9 Office of the Chief Engineer.

Dated 09|10-2009.

NO CE/R8B/KNR/16956/2002

From

, ni C

The Chief Engineer

Kozhikode. Roads & Bridges North Circle, The Superintending Engineer,

(Balance work) ~ Varamkadavu in Chelora Grama Panchayat in Kannur District Sub:- NABARD RIDF XIII - Construction of a bridge at

Refi-1, Lr. No. DC2-2526/98 dated 22-09-2009 of SE, R&B North Cirple,

Kozhikode.

tender variation. This is as per agreement condition. exits item it can be given market rate subject to a maximum of 85/M without applying the tender schedule the rate of 85AA is based on market rate. Hence in this case for the allowed in this case. Regarding the application of tender variation, It is presunfed that in (as per agreement conditions). The rate of Ra 85/M of as per agreement schedule can be change of specification the item of work" Installing PWD" can be treated as ektra items Under the circumstances explained by you vide your letter cited since there is

For Chiel Englace Yours faithfully,

Copy to the Excoutive Engineer, PWD Roads Division, Kannur.

E.E.old straff of Day Attachment No. 3 - P.

T4005/PF005-PWD

PWD Roads & Bridges Office of the Chief Engineer,

921/26

Dated: 1803.2010. merugethnenevarial

NO. CE/R&B/KNR/16956/02

The Chief Engineer

AS YAX

Kozhikode R &B Morth Circle, The Superintending Engineer,

 Chelora Panchayat at Kannur District (Balance work) Sub:- PWD - NABARD RIDF XII - Construction of Bridge at Varamkadavu

R&B North Circel, Kozhikode. Ref:- Letter No. DC 14/2526/09 dated 15.03.2010 of Suptdg. Engineer,

द्रवाभा स्वयंत्र expenditure with the A.S. amount. extra literals and rates are approved. You are requested to limit the total Under the circumstances explained by you vide letter cited, the following

Geo Textile labrics 2m/88 : 1. Providing and laying non wooven

2m/88 : (Rupees Eighty eight only)

(Rupees Eighty eight only)

seventy eight paise only) (Rupees Eighty nine and ZW/82'69:

Minety two paise only) (Rs. One hundred nine and m/26.601 ;

> 3 m width excess directed by the muminian to alsiredem nelytqorf Geo Textile fabrics (Polyster or 3. Providing and laying wooven

2. Providing and Jaying non wooven

Geo Textile under water

directed by the deptl. officers at site. pre fabricated vertical drain etc as 4. Providing and installing of flexible deptl. officers at site.

Yours faithfully,

OF CHIEF ENGINEES

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24	do. Jake Errord		:			
Nan	de. Miss Erenad Engineering Enterprises, Kedur PD, Mainppurem			Less (-)	7.90	<u>. </u>
7		E OF WORKS	3		<u> </u>	L
N		No.or	Unit		stimulat Rate	ARREST TO SERVICE ARREST
		Qty.				AMOUNT Rs P
	Aggendis A: Bridge Proper		 	Figure	Words	
,	Forming letand of size 16.5 mx 10.5m outer side for an average height of 3 m with 75cm above water level by driving down test wood posts clees till of girth 41 to 52cm to an average depth of 2m below bed level at 60cm of: for posts and 2m ofe for struts and tyring with test wood posts 60cm of: for posts planaby driven down and screening with double bamboo rists with necessary bamboo resper provided at required intervals and filting inside with servit sunduding all cost, conveyance hite and lebour charges and all other incidental expenses at completes including mental-ring the the letter till the completion of work and demolition and descring the same after completion of work as perstanding apacitication of work as perstanding apacitication of work as perstanding the spoil for filting and forming of road wherever necessary including breating clods, wesering, revening a force wherever necessary including complete as per significant appeals and apacitication and at directed by the departmental officers.		Nos	480014.00	Rupees Four Lash Sony Thousand &Fourcean Only	1380042 3;
	2 b)First depth 1.50m	540	M3	94.00	Rupege Ninety Four Only	5078C
		462	M3	106 70	Repeas One Hundred & Sec - Pales Seventy Only	49292
	2c)Second depth 1.50m Supplying and fiding MS angles of size 150 x 180 x 12 mm for cutting edge of wall curb including dost and possesses.	288	МЗ	119.40	Rupees One Hundred & Mineteen Passe Fourly Only	3414-2
3	well curb including cost and conveyance of malerale custing bending for required shade welded and bonded to concrete using 12mm down bare welding, drilling and litung charges, incidental expenses ato, complete as per standard specifications and as directed by the departmental officers.	32	Cle	7182.00	Rupens Suven Thousand One Hundrud & Eighty Two Only	225824

Signature of Tenderer with some

Attachment to Para No.5.9 &5.11 (nage 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Krime of	work:-NABARD RIDF XVII- Construction of Thayyllakkaday Bridge across Ka	dalundi rive	in Malapi	nurum Digitriet	P Soughradon of Fig.
34/201	PRINCE WI25 design mix for moulding west tents using 20 cmm. hard-grands product broken stone-as-operar appropriate and river send as fine aggregate, mixing, laying in position and compacting including cost and conveyance of all maseries, all febour charges, welening, curring, formwork charges, incidental expenses etc. comple but excluding the cost of retriorcement as per standard coefficietions and as directed by the departmental officers.	108.25	M3	8850.00	Rupees Eight Transport 1990 12.5
5	IVRCC M 20 design mix for moulding well steining, using 20mm hard grantle graded broken stone as coarse aggregate and river sand as fine aggregate, moting, laying in position and compacting including cost and coinveyance of all materials all labour charges, watering, curing, formwork charges, incidental expanses etc. complete but excluding the cost of reinforcement as per standard specifications and as per the direction of departmental officers.	574,48	MS	7950.00	Puppers Sevini Things 4567,116.1
6	Binking of RCC circular well 8.5 m outer dia 6.5m inner dia (M25 mix) for foundation of abutments in all cleases of soil other than rock to finde and twels and plumb by spooping out earth from inside and below steining with dredgers or any other spollences including hire charges, labour charges, developing, country, whrating, removal of obstacles, cumping the spoil at autistic places with all leads and fifts, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers.				
	Gelforder depth 3 m	6	M	24872.00	Rupees Twenty Four Thousand Eight Hundred & 149232.0 Seventy Two Only
	8b) First depth 3.00m to 4.50m	3	м	28175.00	Rupees Twenty Eight Thousand One Hundres & 84525.00 Seventy Five Only
	Sc) Second depth 4.50m to 6.0m	3	М	31476.00	Rupegs Thirty One Thousand Four Hundred & 94434.00 Seventy Eight Only
	Sd) Third depth 6.0 m to 7.50m	3	M	34781.00	Rupees Thirty Four Thousand Seviet Hundred 104343.0 & Eighty One Only
	Se) Fourth depth 7.50m to \$.0m	3	М.	38064.00	Rupees Thirty Eight Thousand & Eighty Four 114252.0 Only
	5f) Fifth depth 9.0m to 10.50m	2.3	М	41367.00	Rupees Fourty One Thousand Thrite Hundred 95190.16 & Eighty Seven Only
	6g) Skith depth 10.5m to 12.0m District of Tenderer with seal	0.4	M	44590.00	Repeas Fourly Four Thousand Six 25undred & 17876.01 Ninety Only

Name o	Work:-NABARD RIDF XVII- Construction of Theyyllakkaday Bridge screes Ke	243				
4/204	The state of the s	idefundi rive	r in Malep	puram Djetniet		
5	7 (County DD RCC circular well 6.5 m outer die 4.5m janux.die (MDS-nb.) for foundation of abutements in projection of other than rock to lines and levels and plumb by accoping out earth from Inside and below steining with dredgers or any other appliances including hire charges, labour charges, develoring.	`				
<u> </u>	cesting, vibrating, removal of obstactis, dumping this spoil at suitable places with all leads and lifts, incidental expenses stc, complete as per standard spenifications and as directed by the departmental criticers					
	7a)Initial depth 3 m	9	M	21673.00	Repose Twenty One Thousand Six Hundred & Seversy Three Coly	195057.00
	7b) First depth 3.00m to 4.50m	4.5	M	24708.00	Rupees Twenty Four Thousand Seven Hundred & Eight Only	111186.00
	7c) Second depth 4.50m to 8.0m	1,9	M	27743.00	Rupees Twenty Seven Thousand Seven Hundred & Fourty Three Only	52711.70
	7d) Third depth 6.0 m to 7.50m Providing MS downs bars with 25 mm M.S rods 2.50 m long plugging 1.0m in	4.5	М	30778.00	Rupees Thirty Thousand Seven Hundred & Seventy Stant Only	138501 00
	racies in grantes notit including cost and conveyence of all meeting 50 mm dis- racies in grantes notit including cost and conveyence of all meetine, all lebour- changes including cusing the roots in to required length and fining the root in to southon, incidental expenses stc., complete as per standard specifications and as directed by the disportmental officers.	223	Nos	907.00	Rupets Nine Huridred & Seven Only	202281.60
3	C.C. M15 Grade risk for bottom phagging of well using 20mm hard grantize broken stone including cost and conveyence of all metertals, labour for numping concrete, hite of moter and vibrator and limitaling the surface to required levels with all charges etc. complete se per Sat: Specification and applicated by the departmental officers.	346	МЗ	6500.00	Rupees Stx Thousand Five Hundred Only	2262000.00
	crepping and removing extra projection of well staining without damaging the remaining portion including all tabour charges, hire charges, incidental expenses are complete as per Std. Specification and as directed by the deportmental officers.	35	M3	5006.00	Rupees Five Thousand Mine Hundred Only	206500.00
	Filing melde the wells with clean dry river sand including all feeds and lifts, cost and conveyance of sand, consolidating and linishing the top to the required levels, sit labour charges, incidental expenses stc, complete as per standard specifications and as directed by the departments officers.	867	M3	1264.00	Rupees One Thousand Two Hundred & Sixty Four Only	1096888.00

Attachment to Para No.59 &5.11 (nege 44-89 of the attachment related to Para No.59 and sees 64-77 related to mara 5.11)

	· · · · · · · · · · · · · · · · · · ·	77.				
400 534281	7/00-FND	adebiaci dire	r to the	Paris District		
-	C.C. M16 Grade selections Officers have graded Septem sections Grade mix for top selecting of well. Incheding cost and conveyance of all materials, labour for dumping constraint, late of other and ubstact and Shiehing the territor to required levels with all charges etc. complete as per Sel. Specification and the disposal of the dask, officers.		143	\$260.00	Ruppes Str Thousand Two Hundred & Fifty Only	2312555
13	VFCC Nº 30 design mile for moutding wall say using 20mm hard gamble graded broton stone as charse aggregate and wherevern as time aggregate, midning, taying to prettion and compacting behaling cost and consequence of all mesestimus libbour charges, watering, curing, formwork charges, incidental separates atc. coingle but excluding the cost of reinfectment as per standard specifications and as directed by the departmental officers.	416	MS	7150 GD	Ripeas Seven Thousard One Hundred & Fifty (Inly	207±55:"
14	VHCC M 20 design, refs for mouthing abuterant and solid wing well using 20mm had greate greated protein stane as occure aggregate, and river send as line aggregate, mixing, laying in position and compacting installing cost and conveyance of all underland, all labour charges, watering, curing, large cost of charges, incidental expenses etc. complete but excluding the cost of mixing and as pair standard specifications, and as directed by the charge content of the cost of charge traveless offices.	377	МЭ	7 30 0 G0	Rupees Seven Thousand Three Huridred Only	2-52-3079
16	WHICE M 30 design rots for evoluting plor and plor cap using 20mm hard grants graded broken stone to coarse agaregate and river send as the agaregate, rotsing, highly in position and compacting including cost and conveyation of all metarlatual telebour charges, watering, ouring, formsort charges, incidental expenses etc. complete but excluding the cost of children annual as per standard epacifications and as directed by the descriptions of telepolarity and tele		MS	7605,00	Rupees Seven Thousand Six Hundrad Only	1710000 OC
16	VRCC M 25 dealer mits for moulding studment one using 20mm hard grandle graded brotten store as coarse adjungate and river sents as fine aggregate, mixing, i bying in position and compacting including cost and conveyance of all materials, all libour charges, watering, curing, forework otherges, incidental separates sto, complete but excluding the cost of sentorcement as per attended apportunities and as directed by the departmental officers.	8	M3	7900 00	Rupless Seven Thousand	63200 000
17	VNDC M 28 design cells for moulding dist will using 20mm hard granter graded broken atoms as excesse aggregate and stone and as fine aggregate, mixing , buying in position and coupeating inducing dost and conveyance of at miderista, all labour charges, watering, owing, forwards charges, incidented appendix of the cost of relationsement as par atomical apaciticulous and as climited by the departmental officers	22	4/3	\$469.00	Rupees Nine Thousand Four Hundard Only	205900 O OS

Signature of Tenderer with seal

Attachment to Para No.5.9 &5.11 (page 44-82 of the attachment related to Para No.5.9 and page 64-77 related to pera 5.11)

	FUND SHOWING MICH XVII- Construction of They fields day firting general to			Will District		49/12
18	SECC M-36 dealer war for intelline, padestil using 20x1m hard granks braided broken above as course approprie and river send as fine approprie, entiry, having in position and compacting including cost and conveyance of all misseriatual labour charges, watering, curring, formwork charges, inclinated separates sto, complete but outsiding the cost of self-incontent as per classified apportunities and an effected by the departmental officers.		МЗ	8560.00	Rupues Eight Thousand Five Hundred & Fifty Only	28660 00 /
19	VRCC M 26 design mix for moulding T beam, deck stab, terb etc using 20mm hard grantle graded broton stone as ocerse aggregate and river send as fine aggregate, mixing, toying in position and consecuting close and conveyance of all restactabulat lebbur charges, watering, outing, forement charges, insidented sepanases etc. complete but excluding the cost of self-forement as, per standard specifications and as directed by the characteristic officers.	456	M3	21300,00	Rupees Twenty One Thousand Three Hundred Only	9988400 00
20	VRCC M 20 dealth mits for moulding handrall using 20mm hard grantle grantle broken stone as coarse aggregate and river and as fine aggregate, mixing, toying in position and correcting instanting cost and conveyance of all measures, all bloom of compacting, curing, ferniverst charges; incidental expenses atc. complete but excluding the cost of retriboroament as par standard specifications and as directed by the departmental officers.	20.601	M3	12400.96	Rupess Trielly Trousand Four Humined Only	248012 40
21	V(ECC M 20 design mix for moutaing toolpath using 20mm hard grantle gasder broken stone as onerse aggregate and share send as fine aggregate, mixing , laying in position and compacting including dost and conveyance of all materials, all labour charges, watering, curing out of conveyance can expense atc. compate but expluding the cost of reinfurcement as persimment apportunity appointment officers.	27.864	M3	7450.00	Rupess Saven Thousend Four Hundred & Pilly Only	. 207795 90
22	Supplying and fixing drainges spouls with 63 mm dis PVC pipe 60 ors long with GI gratings of 160x150 mm size for deck slab including cost and conveyance of all materials, all labour charges, incidental explaness etc. complete as per standard specifications and as directed by the departmental officers	96	Nos	92.50	Rupece Ninety Two - Pelse Fifty Only	8000 00
23	Providing reinforcement for RCC work using TMT steel, fuelon bonded and apony costed band, that and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete we per blandard specifications and as directed by the departmental officers		CNI	0055.00	Rupaes Six Thousand Eight Hundred & Fifty Five Only	12105030 00

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						49/12
	THE MET AND AND AND CONSTRUCTION OF I RESYNAMES AND STREET AND ACTORS KE		in Malapp	uram District		
24	Providing expension-joint territors spans with Aluminium sheet 18 gauge 7.501 form long and 35 cm widelvesight of sheet 7.50x6,0xx3.40 legin2/packing in-position, cutting the same in position with sto and 10x6mm at 30cm centre to centre and filling the joints with midure of bitumen, sand and sew dust	56	M	1182.00	Rupees One Thousand One Hundred & Eighty Two	66192 00 🗸
	including cost and conveyance of all materials, all tabour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers				Only	
	Providing 20mm pre mixed chipping carpet over the new metalled surface with departmental broken stone after thoroughly cleaning the base with wire brushes, brase brooms and applying a priming cost of 7.50Kg of bitumen's m2 and apreading the premixformed of 0.27m3 of 12mm metal and 12.98kg of					•
25	bitument 10m2) rolling to a dense surface then spreading the seal cost (comprising of a hot premix of 0.09m3 of 6mm departmental metal and 8.64 kg/ of bitumen / 10 m2) again rolling including cost and conveyance of bitumen, oil, fuel etc. ell labour charges, hire charges of bress brooms, camber board, roller and other machineries, welching, lighting, incidental expenses etc, complete (total usage of litumen 29.10 Kg/10 m2,) as per IRC specification	570	M2	162.00	Rupees One Hundred & Sixty Two Only	108540.00 /
	and as directed by the departmental officers Providing and eracting retro-reflector/sed cautionary, mandatory and informatory eigh as per IRC: 87-2001 made of high intensity pharmatic tensional eractive sheeting with 7 years gurantee mounted over hard and corrosion resistant situminium sitoy sheet, 2mm thick confirming to 15: 736 and clause					
. 26	1:2:5 of approved specification supported by frames made of mild steel angle iron of designed size and supported on two posts of mild steel angle iron 75mm x 8mm, firmly fixed to the ground by masss of foundation with M15 grade cement concrete 45cm X 45cm X 60cm, 60cm below ground level as per approved drawing stc.complete including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses atc complete as directed by the departmental officers. (30°90 cm recramputar)	. 2	Nos	3777,00	Rupees Three Thousend Seven Hundred & Séventy Seven Only	, 7,554 OC /
	Providing and erecting retro-reflectorised cautionary, mandstory and informatory sign as per IRC: 67-2001 made of high intensity prismatic tens reflective sheeting with 7 years gurantee mounted over hard and correction resistant aluminium stoy sheet, 2mm thick confirming to 15: 736 and clause				S 5 7	
27	112:5 of approved specification supported by frames made of mild steel angle linen of designed size and supported on two posts of mild steel angle from 75mm x 75mm x 6mm, firmly fixed to the ground by meens of foundation with MHS grade cament concrete 45cm X 45cm X 50cm, 50cm below ground level as per approved drawing etc.complete including cost and conveyance of all materials, all labour charges, his charges, incidental expenses etc complete	2	Nos.	5181.00	Rupees Five Thousand One Hundred & Eighty One Only	10362 00 /

Attachment to Para No.59 &5.11 (page 44-89 of the attachment related to Para No.59 and page 64-77 related to para 5.11)

14		SOURCE PARTY XVII. Construction of Theredesidades Bridge sould X	delundi rive	خوامال جار	Direct Diseases		50/12
-1	28	providing and erecting retro-reflectorised direction and place (Sanification eign with size more than 0.9 8qm as per IRC: 07-2001 made of high intensity priematic tens reflective shaping with 7 years gurantee mounted over hard and corrosion resistant shuminum stays sheet, 2mm thick confirming to 18: 736 and clause 112-5 of approved specification supported by frames made of raid steel angle from of designed size and supported on two posts of mild steel angle from 78mm x 79mm x fluxs, firmly fixed to the ground by means of foundation with M15 grade coment concrete 45cm X 45cm X 60cm, 80cm below ground toward as per approved drawing etc.domptee including onet and conveyance of all materials, all labour charges, hire charges, incidental expenses atc complete as directed by the departmental officers.		M2	\$263.00	Rupees Nine Thousand Two Hundred & Shity Three Only	55578.00 🖊
	29	Painting with synthetic enemet point of suitable colour with approved quality two costs including cost and conveyance of all materials, all labour charges, incidented expenses all complete as per standard specifications and as directed by the descriptions of the complete of the complet	500	M2	66.80	Rupees Eighly Six - Pales Sixty Only	43300 00
	30	Belling out water in tranches using 8 HP pump including cost and conveyanve of fuel, oil all lebour charges, hire charges, incidental expanses sto complete as per standard specifications and as directed by the departmental officers	10000	HPhr	30.50	Rupees Thirty - Palse Filty Only	306000 00
Ŀ		Total for Appendix A= 43374409.16					
		Earth work tilling with contractor's earn earth cut and conveyed from ecurose of availability and forming embantement with all tends and tilts by spreading in hostophal tayers of uniform inicioness over the full width, drying or watering so has ease may be, scenifying to get uniform CNEC compacting the filled sentinusing power roller in layers not exceeding 25cm (toose tholeness) eatherfung compaction tasts, including infimming slopes to lines and tevels including cost of oil. All etc. (fire charges of roller including cost and conveyance of all meterials, all labour charges, includerable expenses etc complete as per standard specifications and as directed by the departmental officers.	\$000	M3	312.60	Rupoes Three Hundred & Twelve - Plese Eighly Only	1584000 00
		Collection and supply of quarry muck including stacking on the road sides in standard heaps for measurement for filling the low lying portions of the road and compecting with power roller including cost and conveyance, all libbour charges, incidental expanses etc complete as per standard specification and as disposed by the dispatrheses officers.	778	MS	643.30	Rupees So: Hundred & Fourty Three - Paise Thirty Only	500487 40

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	They delicated Hills Avil- Construction of They delicated Bridge cores H					
gest #			an andical	puram Digitival		
,	which retrains blanthing for foundation of eaching well and depositing on bank with retrains the days of the said unless the past for thing and depositing on bank with all lead and the and unless the past for thing and inverse or exceeding of spall bank including dreading gloom, watering, remning and sectioning of spall bank including all conveyance charges, lattour charges, including an excellent of the department of the section of the sec	820	443	94.00	Rusess Minely Four Only	770ij0 99
	Consent contrater:4:()(One connent.Four send and Eight Metal) using 40mm hard grantle broken strings, making, laying properly and compacting for foundation of relating well including one and conveyance of all nestrates, all labour charges, wetering, curing, increased, including apparatus on, complete as per standard apparatus and as directed by the departmental collision.	360	MS	4213.40	Rupes Four Thousand Two Hundrad & Thirteen Only	
5	Coment Concrete 1:25(One Coment, Three Sand and Skr Males) using 60 % of 40mm and 40% 20mm hard grantle broken state, mising, laying properly said compacting for spating well and draft including cost and conveyance of all malestales, all between charges, form work charges, westering, curing, inclosestal expenses atc.compacts as per standard specifications and as directed by the decomposity officers.					
	Ge) For footing and stuper structure of quadrant will	675	MS	5153.00	Rupees Five Thousand One Hundred & Fifty Three Only	3478275 00
	80) For folling and super structure of retaining well	530	M/3	6466.00	Rupses Five Thousand Four Hunored & Satty Five Only	2929240 DG /
6	Dry rubble mesonry using hard blasted quarry rubble for foundation and super structure of retaining wells including dost and conveyance of all metertals, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	60	M3	1326.00	Rupess One Thousand Three Hundred & Twenty Sight Only	108240 00 /
7	hard granite trolten stones, mixing, laying properly and compacting for top bet including cost and conveyance of all materials, at labour charges, former including cost and conveyance of all materials, at labour charges, formering charges, watering, curing, incidental expenses etc., complete, excluding cost of reinforcement, as per standard specifications and as directed by the department officers.	10	Mã	6460.00	Rupees St. Thousand Four Hundred & Fifty Osly	64500 00 _
8	Collection and supply of 80 mm hard grants graded matel in the ratio of 7:3 of 900mm and 36 mm metal by volume respectively and stacking on the sides of road in stacking repair of pre-measurement including cost, conveyance, at labour charges, impliantal expenses at complete as directed by the descrimental officers.	182	M3	981.00	Rupees Nittle Hundred & Pilly One Only	154062 06 🎤

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to mara 5.11)

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250	1612 MANUTO NIDE XVII- Construction of Trepydatalant Relige serves	Hadelundt strer	in manage	tion District		
	Objection and supply of 36 mm hand graphs broken atoms and stacking on ti- sides of road in standard heaps for pro-measurement including co- conveyance, all labour/bidriges, includence expenses ets complete as directi- ity the departmental officers	t	МЗ	1043 00	Rupees One Thousand &Fourty Yeres Only	184794 07 //
10	Supplying and stacking good gravely rad earth for building and stacking on ti sides of road in standard heaps for pre-measurement including on conveyance, all labour charges, incidental supenses ats complete as direct by the departmental officers.	4.	MS	374.00	Rupees Three Hundred & Seventy Four Only	215-822
11	Inhelling the routiney 100 mm foldeness compacted to 75 mm using broke stone (graded granite stone in the ratio 2:3 of 60 mm and 36 mm at respectively) 15n3 per 10m2 and departmental binding material at 0.20m3 pr 10 m2, bed rolling, apreading broken stones to template, rolling sky compaction from sides to combin until the requestment of broken stone consuming profusely and re-poling until the times cream up and 60 he voide of a store, then apreading the growthy earth and sweeping in to the joints, waterial or rolling until the gravely earth has worted in to all crevious and at 6 count of storey remains, then take off the roller and allow the surface to set hands for 24 hours and re-rolling next day until any determity is recisification for 24 hours and re-rolling next day until any determity is recisificationally an appearance of melatating the surface free lease-rate to the partners at a sobour charges, incidental expenses are completed a melatating the surface free lease-rate for 15 days after completion as patentially appellication and as distanted by the departmental officers (for a lease).	con correction of the correcti	MG.	82 SC	Rupons Sixty Two - Passi Minsty Orey	101826 - /
12	filtrating the roadway 100 mm thickness compacted to 75 mm using brain stone 36 mm size, 1m3 per 10m2 and departmental binding material at 0.15m per 10 m2, but ording, apreading broken stones to template, rolling dry compaction from sides to centre until the movement of broken stone cent watering protestely and re-rolling until the finas cream up and 88 the voids of the stone, then apreading the gravely earth and awasping in to the joints, watering and re-rolling until the gravely earth and awasping in to the joints, watering and re-rolling until the gravely earth and awasping in to the joints, watering and re-rolling until the gravely earth and awasping in to the joints, watering and re-rolling until the prevention for the filter and allow the surface to set filter of the rolling and allow the surface to set filter of the rolling the surface to set filter of the prevention. It is book the firm of the rolling and conveyence of metalling the surface free from russ for 15 days after completion for eulb be se per standard specification and an directed by the departmental officers (been course).	n3 to to he ng in io 1875 / ad ad ad	M2	es sc	Rupees Saty Ywo - Pales Ninety Orty	99067-51
13	Collection and supply of 12 mm size hard granite breiten stone and stacks on the sides of road in standard heaps for pre-measurement including to convisiones, all labour charges, incidental expenses sic complete se direct 32 he descrimental officers synature of Tendercr with east		M3	1894 90	Rupees One Thousand Six Hundred & Trienty Four Only	69832 06 /

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ANTENNAMENT OF A VIII- Construction of Throughthadev Stidge Self-	s Kadalyndi rive	r in Maleo	Duram District		
Collection and supply Of 6 mm size hard grants broken stone and stacking the sides of road in standard heaps for pre-measurement including a conveyance, all tabour charges, incidental expenses etc complete as directly the departmental officers.	on cet. 15	M3	1333.00	Rupees One Thousand Three Hundred & Thiny Three Only	****
Providing 20mm pre mixed chipping carpet over W.B.M surface departmental broken stone after theiroughly cleaning the base with brushes, brase brooms and applying a priming oast of 7.50Kg of bitumer in 2 and apreading the priming(comment of 0.27m3 of 12mm metal and 12.98th bitumen/ 10m2) rolling to a dense surface then episeding the seal of (comprising of a hot premit of 0.09m3 of 8mm departmental metal and 8.6 of bitumen / 10 m2) again rolling including cost and conveyance of bitumen feel etc, all labour charges, hire charges of brase brooms, camber box rollier and other mechineries, watching, lighting, incidental expenses complete (total usage of bitumen 29.10 Kg/10 m2,) as per IRC specifics and as directed by the departmental officers	wire v10 g of cost l kg oil, oil,	1/12	182 CC	Rupses One Hundrad & Shity Two Only	262-90 ::
Providing precest quard stones of 20x20x80 cm made of CC-M 20 using 20 hard grantis broken stone with 4nce HYSO, bers 10mm dis and 6mm stin @15cm of: for reinforcement and fixing in line and levels 60 cm below ground level with CC 14:8 (46cm x 45cm x 50cm) including cost conveyence of all materials, all labour charges, incidental expenses complete as per standard specifications and effected by the department	ups the and 114	Nos	1043.22	Rupuss One Thousand &Fourty Three Only	18-22 30
Providing road markings with hot applied thermo plaistic compound 2.50 thick including reflectorising glass beade@250 grams per square metre are the centre line and pedestrian crossings of road glackness of 2.50mm exclusive of surface applied glass peeds) and finishing the surface applied glass peeds) and finishing the surface applied glass peeds) and enishing the surface surface applied glass peeds and enishing the surface surface continued uniform free from streaks and holes including cost and conveyance of materials all labour charges, incidental expenses are compite as per stand MORTH specifications and as directed by the departmental officers.	a at and and 64	M2	384 X	Rupees Three Hundred & Eighty Four Only	24578 00
Total for Appendix B= 11303061		 			
Appendix C-Construction of outverts Each work excession in all cleases of soil except hard and medium in which require blesting for foundation of outvert and depositing on bank with lead and lifts and using the spoil for filling and forming of road when necessary, including breaking clode, watering, ramming and sectioning of a bank including all conveyance charges, lathour charges, incidental expenses complete as per standard specifications and as directed by the departmen	net poli 108	мз	ga 60	Rupees Minety Four Only	10152 00

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	Attachment to Para No. 5.9 & 5.11 (page 44-89 of the attachment to the attachment to the stack of the published recent to the stack of	tabled its		Auran Dhaire		
P SASE	Company Cooprete 1:4:0(One comment Four send and Eight Metal) using soften and action of convertinating, busing properly and comparating for foundation of convert including cost and conveyance of all materials, all labour charges, watering, curing, forthwork charges, incidental expenses etc., complete as per standard specifications and as directed by the departmental officers.	46	MCS	4213.00	Rupete Four Thousand Two Hundred & Thirteen Only	
3	Coment Concrete 1:3:5(One Coment, Three Sand and Sty Metal) using 80 % of 40mm and 40% 20mm hard grants broken stone, midng, laying properly and compacting for footing and abstrated of culvest including cost and conveyance of all metantals, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the dependental officers	118	МЭ	5191.00	Rupees Five Thousand One Hundred & Ninety One Only	612538 0
4	Freinforced coment concrete? 11/2:3(One coment,One and half saind and Three Motel) using 20mm hard granite broken stones, mixing, laying properly and compecting for culvert including cost and chiveyence of all materials, all tabour charges,formwork charges,watering, curing, incidental expenses etc. complete but excluding the cost of reinforcement, as per standard associations and as directed by the departmental officers.	42	M3	6650.00	Rupees Six Thousand Six Hundred & Fifty Only	27930 0.0
š	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coeled bend, lied and pleced in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	64	Chn	6665.00	Ruptes Set Thousand Eight Fundred & Fifty Five Only	370170.0
	Total for Appendix C= 1466466		 			<u> </u>
	Appendix D-River Bide Profestion Wedge		 	 		
1	Earth work excavation in all classes of soil except herd and medium rock, which require bleating for foundation of netaining well and depositing on bank with all feed and alto and saing the spoil for filting and forming of road wherever necessary including breaking clode, watering, remning and sectioning of spoil bank including all conveyance charges, labour charges, incidental expenses sto complete se per standard specifications and set directed by the departmental officers.	1800	МЭ	94.00	Rupass Ninety Four Only	150400 0
2	Certent concrete: 4:0(One certent Four sent and Eight Matal) using 40mm hard grantle broken stones, mixing, laying properly and compacting for touridation of retaining wall including bost and conveyance of all materials, all about charges, watering, curing, formwork charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental cofficers.	141	M3	4213.60	Rupees Four Thousand Two Hunored & Thirteen Only	594033.0

Attachment to Para No.59 &5.11 (page 44-89 of the attachment releted to Para No.59 and page 64-77 related to para 5.11)

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MANY AND AND AND AND	i- Construction of Theyelishkedev-Bridge Stross	Kadalundi she	y in Malana	Hartin Olesaka	·	65
	Unit Coment These Send and the Month	 	T	Train trainer		
and completeling for four cost and conveyance of watering, curing, inclu- toscillosions and as the	mm nard grantile broken etone, miking, leying propert deletion and super structure of retaining well includin all meterials, all lebour charges, form work charges lental expenses etc.compléte se per standan	1080	MS	5111.00	Rupees Pive Thousand One Hundred & Eleven Only	5579880 (0
aporty coaled band, lied 4 of all materials, of let-	and placed in position including cost and conveyance		СМ	6865.00	Rupees Six Thousand Sight	
	on an exacted DA toe debetsweater election	1	_	9803.00	Hundred & Fifty Five Only	1323015 00
etc. complete as per	es 63mm die PVC pipes for retaining wells including all melierlets, all labour charges, incidental expenses standard specifications and as directed by the	100	M	74.00	Rupees Severey Four Only	11840 00
ne per standard specifice	hee using 5 HP pump including cost and conveyance rise, hire charges, incidental expenses six complete tions and as directed by the departmental officers	15000	HP hr	30.50	Rupees Thirty - Passe Puty Only	30500c 0c
Total for Appendix 0=	304164	 	╂┷┷		<u> </u>	
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Affection and the Danie No. 6 O. S. 6 11 (many 44 CO at 45 and 5		. '	
Attachment to Para No.59 &5.11 (page 44-89 of the attachment	related to Pero No. 5	B and week 64 7	7 Inda J As # 445
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	2. The rate was	be quoted in words				•	•			•	

No. of Correction

No. of Overwriting

80/-

Contractor

P.W.D(ROADS & BRIDGES) .

NORTH CIRCLECAS AL

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.59 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

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<u> </u>	Probabili Quantity	Conception of Work]	Raje le	Unit	M Amour
	+		Rupee		3	
	2 Nos	Forming Stand of size 16.5 mg t0.5m outer side for an average beight of 2 m with 30cm above water level by driving down tests, wood poets to an average depin of 2m below had level at the object poets and 2m on the strute and typic unit tests wood poets 50cm of to vertical poets circady driven down and actesting with risolate hamilton met with investessy begates a mapur provided at required intervals and lifely inside with earth including all cost, conveyance hits and labour charges and all other incidents expenses at complete including resinishing the the lessed of the completion of work and demolition and differentially the same after completion of work as per standard specifications and as discipled by the	Karana a	Rs Five Laidin Seventeen Thousand Four Hubbred and Ninety Sti cray		165248
2		beginneds according to sel claims of self except heat and medium rack, which require blacking for and depositing with all leads and title for abutments and using the adult for filling and forming of read wherever necessary including breaking clocks, watering, remaining all labour changes, incidentel expension efficiently as per standard especiation and as directed by the departmental officers.				
25	540 Cubic metra	Joseph depth 1.5Qm	1003.00	Rs One Thousand soci	Ten Cubic	57402
2b	462 Cuble metre	First depth 1,50m	1190,00	Stay There only file Thousand One Hundred and	metre Ten Cubic metre	54978
20	338 Čubic metre		317.00	Rs One Thousand Three National area	Ten Jubic	44516
3	Fig. 1. 100	Islandard energications and as director to the second section of the section of the second section of the second section of the second section of the section of the second section of the	562.00 E	ls Six Thousand ive Hundred	Dine ukitat	200004
4	deci metre	VRCC M 25 design mix for mousting well keeth using stated grantle graded broken stone as cosme appraish and mer sand as fine appraish, rabbing. Bying in position and compacting including costs and conversace of sti materials, all tabour charges, watering, cuting, formwork charges, including the supersises sets, comple but excluding the cost of reinforcement as per standard specifications and as discount by the department profilers.	12.00 R	Elghly Two C	en ibic 8	77400

Contract

Superingending Engineer

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1400534/2017/OB-PWI

Page 2

•	of Work- Con Probable Quantity	rtruction of Valigopatem Alungalizadavu Bridge across Kadelundi rivér in Naisppuram District Description of Work		Rate in		Amount - (Rupees)
5	796000 Cubic deci metre	VRICC M 20 design mix for moutding well staining using 20mm hard grants graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials all libour charges, watering, cuting, formwork charges, incidental superness set, complete but excluding the cost of reinforcement as per blandard specifications and se		Rs Seventy Nine and palse Fifty only	Ten Cubic deci nr 1/8	8326200
6	eren in	Sinking of RCC circuit well 8.5 in outer die 6.5 m inner die (M25 mix) for foundation of abutmenta in all ciseans of soil other than rock to lines and levels and plumb by accoping out earth from inside and below steining with dredgers or any other appliances including him charges; abour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at sultable places with all leads this, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers.				
Ge	6 metre	Initial depth 3 m	24707.00	Rs Twenty Four Thousand Seven Hundred and One only	One	14820
6ь	3 metre.	Second depth 3.00m to 4.60m	28004.00	Rs Twenty Eigh Thousand and Four only	metre	8401
fie:	3 metre	Third depth 4.50m to 6.0m	31306.00	Re Thirty One Thousand Tires Hundred and So only	One	9391
1 44	3 metre	Fourth depth 6,0 m to 7.60m	34609.00	Rs Thirty Form Thousand Sh Hundred and Nine only	One	1038
~	2.6 metre	Fifth depth 7.50m to 9.0m	37912.00	Rs Thirty Sever Thousand Mini Hundred and Twelve only	One	9857
NA .	1.5 metre	Sixth depth 9,0m to 10,50m	41215.00	Re Forty On	One	618
Se .	1.5 metre	Seventh depth 10,5m to 12.00m	44518.00	Rs' Forty Fox Thousand Fiv Hundred an Eighteen only	One	667

-	Probabi Quantit	meetricition of Vellippedem-Alungallanderry Bridge seroes Kedelundi river in Maleppuram Diviriet. Gescription of Sturk	,	Rate in	Unit ir Words	Amoun
•	Q.9 maps		47 6 21,00	Rs Forty Seven Thousand Eight Hundred and Twenty One only	One make	43099
7		Whiting of RCC circular well 6.5 m outer die 4.9m inner die (M25 min) for foundation of plans in all citaties of soil other than roof to fittee and levels and plumb by scooping out earth from helds and below seeining with dradgers or any other appliances including time charges, jakout charges, develoring, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and fills, incidental expenses etc., complete as per standard specifications and as directed by the standard pathogra.				
7a	· O metro	Initial dapth 3 m	21679.00	No Ywerly One Thousand Sic Hundred and Setenly Nine only	One MINE	18511
75	4.5 matra	Recent depth 3.00m to 4.60m	24714.00	Rs Turenty Four Thousand Seven Hundred and Porteen only	One	11121
e	4.8 mates	Third depth 4.60m to 6.0m	27749.00	Na Trigony Seven Thoistand Seven Hundred prof Forty Nine Otly	One metre	124871
	4.5 metre	Fourth depth 6.0 m to 7.60m	30784.00	Re Thiny. Thousand Seven Hundred and Bohle Four only	One	130620
	4.5 matre	Filth depth 7.60m to 9.0m	33619.00	Re Thirty Three Thousand Eight Hundred and Mineton any	One	182100
1	2.20 matra	Skith depth 9.0m to 10.50m	36855.00	PER THEN SHOT	One	B1081

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1400534/2017/OS-PWD

of Work-Construction of Vallepedam Ahmeiskadevu Bridge adrose Kadalundi river in Melappurani Disessi Probable Cunnille Description of Work Words Rais in He Thirty Nine Thousand Eight One Sevents death 10.5m to 12.00m 0.30 maios 39890.00 11987 the street حصمت Ninety Only Provising MS downlibers with 26 mm M S rads 2.50 m long plugging 1.0m in the higg mck and 1.50 m in to concrete & 1 m of after drilling 50 mm dis holes in granite rock including cost and conveyance of Saver Hundred 223 Nos fall materials, all tabour charges including cutting the rods in to required length and fluing the rod in tol 737.00 Each 164351 position, incidental american atc. complete as per standard specifications and as directed by the Thirty Seven only departmental officers C.C. M16 Grade with for bottom planning of well steing 20mm hard grantine broken stone including one Ten 350000 Cubic and conservence of all meterials, bibour for durniting concrets, bles of miner and wheater and finished Cable 66.00 Rs Staty Stat only 2310000 deci metre the surface to required tevate with all charges etc. complete as per Std. Specification and as directed to deci the departmental officers metre Chipoing and removing eaths projection of well stating without damaging the remaining portion Ten 28000 Cubic including all labour charges, hire charges, incidental expen- " tomplets as per Std. Specification Ra Thirty Eight Cubic 38.00 108400 deci metre and us directed by the departmental officers. deci meire Filling Inside the wells with clean dry river sand including all heads and tits, cost and summaryance of One One sand, consolidating and finishing the top to the required levels, all labour charges, incidental expens 1269 Carlo Thousand Two 11 1217 00 Cubic 1544373 etc. complete as per standard specifications and as directed by the departmental officers metre. Hundred maine Seventien only C.C 1:2:4 (One Cement, Two send, Four motel) using 20mm hard granite broken alones Grace mix for Ten 37000 Cubic tion plumping of well. Including cost and conveyance of all meterials, labour for durraing concrete, hire Rs Staty Two and Cubic 12 62.50 231250 of mixer and vibrator and finishing the surface to required levels with all charges etc. correints as per deci matre paise Fifty only deci Std. Specification and the direction of the depti. officers. metre VRCC M 30 design mix for moulding will gap using 20mm hard orange graded broken stone at Ten course accreage and fiver send as fine accrease, mbdng, leving in position and compacting including 460000 Cubic Rs Seventy One Cubic 13 cost and conveyance of all materials, all indoor charges, watering, ouring, formwork charges, incident 71.00 3200000 daci metre ordy ' deci expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as meire directed by the departmental officers VRGC M 20 dealer mix for moutting abutment and solid wing well using 20mm hard grante bradet · Ten: broken stone as course aggregate and river sand as fine aggregate, mixing , laying in position and 377000 Cubi Rs Staty Eight Cubic compacting including cost and conveyance of all materials, all labour charges, watering curing, 68.00 2563600 deci metre deci formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per metre standard specifications and as directed by the departmental officers

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Dine 6

	Probable	struction of Valippedern Alungalizative Bridge across Kadalundi river in Malapperam District		Rate In		Amount (Rupees
15	203000 Cubic deci metre	incidental expenses etc. complete but excluding the cost of reinforcement as par standard incidental expenses etc.	87.60	Rs Eighty Seven and pales Fifty only		1778954
16	8000 Cubic deci metre	VPRCC M 25 design mix for mouthing abutment cap using 20thm hard graine graded broken some as commit aggregate and river sand as the aggregate, mixing, laying in position and compeding including cost and conveyence of all materials, all labour charges, vietering, curring, formwork charges, incidental expenses etc. complete but sectualling the cost of reinforcement set per standard expeditional and as directed by the decremental officers.	79.00	Ra Seventy Nine only	Ten Gubic deci metre	63200
17	22000 Gubic deci metre	VRCC M 25 design .mk for moulding dir well using 20mm hard granite graded broken sides as coases aggregate and river sand as line aggregate, mixing, flaying in position and compacting including cost and conveyance of all materials, all tabout changes, wetering, curing, fermionic changes, incidental expanses, etc. complete but changes to be city of reinforcement as per standard specifications and as interest by the description of the coase of t	—	Rs Ningly Four	Ten Cubic deci metre	20060
18	6000 Cubic deci matre	VROC M 30 deelgn mix for moutting pedeatate using 20mm has granter granter broats some appropriate and river sand as time appropriate, mixing , leying in position and compacting including cost and conveyance of all instrictional labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and an expense of the trip development of filters.	77.00	na Seventy Seven only	Tan Cubic deci meter	46200
19	468000 Cubic decl metre	VRCG M 25 design: mix for moulding decix state, girders, and herb using 20mm hard grants grasses broken stone as coarse aggregate and river send as fine aggregate, mixing , bying in position and compacting including cost and conveyance of all metantists, all tabour changes, watering, curing, formwork charges, including expenses etc. complete but excluding the cost of ministrument as per complete and send on directed by the departmental officers.	223,00	Rs Two Hundred and Twenty Three only	Ten Cubic ded matre	10426-1
0	20000 Cubiç deci metre	VPCCC M 29 design mix for moulding bendralle using 20mm hand granite graded broken alone as coarse aggregate and river send at fine aggregate, mixing, taying in position and compacting including cost and conveyence of all interview, all labour changes, watering, outing, formwork charges, incidental expenses etc. comparts but encluding the cost of reinforcement at per standard specifications and as depended by the decemental officient.	105.00	Rs One Hundred and Fifty Two orly		30400
21	28000 Cubic decl metre	VRCC M 20 design into for moulding footpath using 20mm hard grants graded broken atons as coarse aggregate and river sand as-fine aggregate, mixing , taying in position and companing shoulding cost and conveyance of all materials, all tabour chalges, wetering, curing, formwork charges, incidental expenses pic, complete but entitling the cost of reinforcement as per standard specifications and as	39.00	Rs Eighty only	Ten Cuthic deci metre	22:
22	95 Nos	Supplying and fixing draingest sposts with 63 mm die PVC pipe 60 cm long with Gl gratings of 180x190 mm size for dack stab including cost and conveyance of all materials, all tabour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	57.00	Ru Fifty Seven	Each	64]

140 -34/2017/08-PWD

-	of Work-Com	Brustlan of Vallepadem Alungalitations Bridge across Kadalundi river in Malappuram District		7	٠.	1.	
•	Organity	Description of Wart		Rate in	, .	Unit is Mords	Amount
23	1883 Quintel	Providing reinforcement for RCC work using TNT steet, finish bonded and epony costed bend, time and placed in position traducing cost and donveyance of all meantains, at tabour charges, incidental expenses, complete as per standard epocifications and as directed by the departmental officers.	B855.00	Re Str T	Hundred	1	1297661
24	90 metre	Providing expansion joint between spans with Atomistion sheet 16 gauge 7.90 cm long and 55 cm widglyreight of sheet 7.50m0.fbx3.40 highr/2)packing in position, cutting the same in position with the and filling the joints with mixture of billumen, sand and sew distinctivity order and convergence of all materials, all between therees, incidental expanses ato complists or par standard specifications and as directed by the departmental officers.	145.00	Pla Thousand Hundred Nigoty Th	and	One	66808
25	570'Square moore	Providing and bying 60mm average thick biluminpus constals wearing cost over the correspondy will heavy seel cost uning 34mm broken atone 0.36 m3, 18mm broken stone 0.245 m3, 8mm broken atone .09 m3prentised with not bilument (40Kg/m3) 71,80Kg/m2 incheding a tech cost of 2.60Kg /10m2, rolling to a dense surface brokeling cost and corresponds of all meterials, all labour charges, kine charges of talker, thisar, which berrows . Incidental expenses etc., complete as per standard specifications and be through the densembrous officers	467.00	Re Thousand Hundred Seventy	and	Square	312957
20	640 Square makes	Painting with synthetic enemal paint of suitable colour with approved quality two costs including cost conveyance of all materials, this labour charges, incidental expenses at complete service standard profilestings and an electrical bursts of the characters of the control of the control of the control of the characters of the control	9000	Rs Nine anly	Huncred	Square Inggre	6780 0
27		felling out water in translage using 5 (4P pump) including cost and conveyance of fuel, oit all instaur harges, hire-charges, incidental expenses atc complete as per standard specifications and as directed by the departmental officers	3100	Rs This only	y On	Hp/hr	31000
+		DEDUCTION FOR DEPTL MATERIALS & HIRE CHARGES OF TEA				, Th	476122
		Nati PAG					476122

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1/Vis agree to undertake to execute the work at (*) 1/Vis agree to undertake to execute the work at (*) 1/Vis agree to undertake to execute the work at (*) 1/Vis agree to undertake to execute the work at (*) 1/Vis agree to undertake to execute the work at (*) 1/Vis agree to undertake to execute the work at (*) 1/Vis agree that the trade watership and at him sharpes for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions who leads agree that the trade watership has applied on the execute excluded after deducting the cost of all Departmental materials and at the charges for departmental tools and plant tronk the total execute of the unit worked out of the cate given in the extensive disabled to the tender. 1. 'Strike out which is not applicable. 2. The restriney be quoted in words and figures. 1. 'Strike out which is not applicable. 2. 'The restriney be quoted in words and figures. 2. 'The restriney be quoted in words and figures. 2. 'The restriney be quoted in words and figures. 2. 'The restriney be quoted in words and figures. 2. 'The restriney be quoted in words and figures.	_		deligheren of Assistantia	, .			•				
lose cost of Departmental materials and all him charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed. If we also agree that the tender reseased duction may be applied on the amount celoulated after deducting the cost of all Departmental materials and all him charges for departmental tools and plant from the tend amount of the work worked out at the rate given in the extended to the tender. NOTE: 1. *Strike out which is not applicable. 2. The returney be quoted in words and figures. No. of Connection No. of Connection No. of Connection No. of Connection All of the contractions are all the contractions and significant and the contraction are applicable. All of the contraction are all the contractions and significant and contractions are all the contractio		Paradi Pres la	C') in arow of sources of articles	© Con trac	hore , Kal	kei r _y a	Halappe	ram Biotzigi		•	*:
lose cost of Departmental materials and all title oberges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed? If we also agree that the tender researceduction range be applied on the amount belouteted after deducting the cost of all Departmental materials and all time charges for departmental tests and plant from the tends and plant trom the tends and plant trom the tends and of the work worked out at the rate given in the activate distributed to the tender. NOTE: 1. *Strike out which is not applicable. 2. The retermey be quoted in words and figures. No. of Connection No. of Connection No. of Connection No. of Connection All of the series of the series of the series given to the activate of the series given to the se	-		- Table and a		•		•	-		•	* .
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less cost of Departmental materials and all him charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed? If we also agree that the tunder existes beforeign may be applied on the amount belouteded after deducting the cost of all Departmental materials and all time charges for departmental tools and plant iron the total amount of the work worked out at the sate given in the actual all distributed to the tender. NOTE: 1. *Strike out which is not applicable. 2. The cost may be quoted in words and figures. No. of Connecting Postessing! by Godge **All on Connecting **All on Connect										. •	
If we also agree that the tender-extress hodicator may be applied on the amount televished after deducting the cost of all Departmental materials and all time charges for departmental legis and plant from the tetal amount of the work worked out at the rate given in the extends distributed to the tender. NOTE: 1. *Strike out which is not applicable. 2. The rate may be quoted in words and figures. No. of Connection No. of Connection No. of Connection No. of Connection Programmal Applicable by Goding **Strike** **Strike** **Strike** **Programmal** **Applicable** **Strike** **Applicable** **Strike** **Applicable** **	,144	-=	**** *********************************	***************************************	****************	*****************	·		M-show-sa	-	•
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SUPERINTENDING ENGINEER, F.W.D.FROADS & IMPORTA	No. of Com	2.			84/-		71/	·	N		

tere No	Probable	nulus Package- Communication of Mythrekkadavu bridge scross Challyer river in Molappuram District Description of Work			Lieft i	Amount
	 	Constitution of the state of th	<u> </u>	Rate in		(Papers
- 4	<u>L</u>	,	Figures			
	APPENDIX A	- BRODGE PROPER	(Cupses)	Mords	<u> </u>	<u> </u>
1	6 Nos	Forming felland of size 18.80x 10.50 m outer side for an average height of 6:m with 30cm above wase level by driving down tests wood pelse 150 mm die at 50 cm o'c horizontally to the vertical posts provided at 60cm olc and provide tests wood struts 180mm olc at 180cm olc all round and acreening with double tiembor net with mecaseasy bention risper provided at required interests and filling inside with earth including all dost, corresponde the and labour charges and all other incidental expresse etcomplete including maintaining the the island till the completion of work and demolition and clearing the same after completion of work as per standard apacifications and as directed by the departmental colliners.	319150.00	RS Three Lakhs Nineseen Thousand One Hundred and Fifty only	Each	191490
2	34 Quintais	Supplying and fixing bits angles of size 160 x 150 x 12 mm for cutting edge of well curb including cost and conveyance of materials outling bending for required shade welled and bondes to concrete using 12mm dozel bars welding, drilling and fixing charges, incidental expenses etc, complete as per standard specifications ambient/incided by the departmental officers.	5511.00	Rs Five Thousand Five Hundred and Eleven only	One	187374
3	97600 Cubic Deci Metres	VYCC N 25 design mix for moulding well curb using 20mm hard grants graded broken stone as coarse aggregate and river sand as line aggregate, mixing , leying in position and compacting including cost and conveyance of all materials, all labour oberges, wetering, curing, formwork charges, incidental expanses etc. completes per standard specifications and as per the direction of degermental officers that auditation the cost of reinforcement.	55.50	Re Fifty Five and poice Fifty only	Ten Cubic Deci Meres	538350
'	496000 Cubic Deci Metres	VRCC M 30 design mile for moutding well steining using 20mm hard granite graded broken stone es coarse aggregate and river send as fine aggregate, mixing, laying in position and compacting including cost and conveyance of all materials, all labour charges, wetering, ouring, formwork charges, incidental expenses atc. completees per standard specifications and as per the direction of departmental officers but excluding the cost of minimumment.	***	Rs Fifty Three and pales Fifty only	Ten Cubic Deci Metres	2053000
	•	Sinking of PCC circular well 6.50 m outer die 4.50m inner die (1425 min) in all classes of soil other then rook to lines and levels and plumb by accoping out earth from inside and below steining with dredgers or any other appliances including hire charges, lebour charges, develoring, casting, vibrating, removal of obstacles, clumping the spoil at suitable places with all leads and life, incidental expenses els, complete as per standard specifications and es directed by the departmental officers.				
,	16 Matres	a) Initial depth 3 at	13302.00	Rs Thirteen Thousand Three Hundred and	One Maire	241056

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		ન લંગો	<u>'</u>	Description of Work	Quenelly	•
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*1022		athorns four Thousand Four Thousand Show	00,050+	C.C. 12:n (One Centurit. This send, Four metal) using 20mm hard provine broken elemes Grede rate for pragating of well. Including costs and conveyence of an inserties, labour for deraping concrete, three for inserties and charges and conveyer. The conveyer with the charges else conveyer, the derivative and the disposition of the depth officers.	57 Cubic	О
99799		on Distriction of the bright o	00.8811	tet gelleut in all casses of soil emagni herd and medium noch, which nequire bleeding to Earth work exceeding to all casses of soil emages, and title industrie breathers are abuneants and depositing with all sebour charges, incidentel expenses elso candigues as par standard membranes of cassifications of second selections of the deposition and selections are part as the deposition of describes and selections are a text of the cassifications.	765 Cubic Metres	ŀ
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131370	2 1 3	Rs One Hundred and Stoty One	8	wholes stand as coated appropries and form over size, fath at using 20mm hard grants graded compacting including coat and comercian of all missels, as leader to design, taking in posteria and comercian of all missels, as leader obergas, wellering, cuting community charges, incidental superiose at, completes for standard apportionisms and as per the charges of departmental officers but expended the coat of indicating appropriate and as per the charges of departmental officers but expended the coat of indicating appropriate and as per the charges of departmental officers but expended the coat of indicating appropriate and as per the charges of departmental officers but expended the coat of indicating appropriate and as per the charges of the coate of	816000 Cubic compacting Dect Metres formwork of direction of d	ß	
357000	g	Pro Byte Thousand and Phe Hamdood only Hamdood	9500.00	Instant laminations each 3mm that and two layers of electometric pads 12mm that made in the layers of electometric pads 12mm that that is agreed on the electometric pads 12mm that is cover at the and tottom and deme that is cover already and including cost and consepance of all materials, all latest charges, the incidental expenses of complete, as per standard specifications and as directed by the original form.	12 No.	*	_
31920	E OCT	Re Fifty Six only	55. 00	compa appragate and river sand as the appragate cost and conveyance of all materials, all labour of expenses ext. completes per standard specifical but applicating the cost of testingerspecifications are controlled to the standard specification.	5700 Cubic Deci Maines	8	
92980	1 0 K 3	Re Filly Four and palse Filly only	24.85	apprograms and river sand as the appropries making, before and position and companies and an appropriate appropriate appropriate appropriate and an per the direction of deposition and an appropriate appropr	17000 Cubic Deci Metres	23	
45900	E DE S	Pa Filly One only	51.00	Contracting the contracting th	8000 Cable Deci Maires	2	
2590600	# p Q =	Rs Stdy One and pates Fifty only	81.50	comme apprepare and their sand as fine apprepare, mixing, lawing commit intergentation proded broken atoms as committees as the apprepare, mixing, lawing in position and compacting installing could and compacting installing could and compacting installing could and compacting installing expenses and compacting installing expenses and compacting productions and as per the direction of departments efficient this good of reinforcement approximations and as per the direction of departments efficient this good of reinforcement.	470000 Cubic Deci Meetus	8	
		Words		WACC H. SO As Loc. The Control of th		T	
Unit In Amount	E			Description of Work	Quantity	8	
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9	E CO	Re Shileen and pelse Eighty only		including desting of read uniform resolution envision on peopleto serioop of generals based including desting of read uniform people of serious means including desting of read uniform people of the implemental indicates an envision of the implemental indicates of the destination of the destination of the destination of the destination of departmental uniforms.	4110 Square Macras	25	·
8	19	Rs One Thousand and Seventy One cas	1071.00	In position, custing the same in position w j in position, custing the same in position w joins with minime of bilamen, sand and sa boar changes, incidental impenses dis comp parlmental cificans	80 Metros	22	
991925		Par Para Para Phonometer Para Para Para Para Para Para Para Pa	70.5	d 5 908	166 Quintal	* *	
13864701	00	Rs Four Thousand Five Hundred and Beventy One only	4871.00	band, that and placed in position legace cidental expanses, complete as per a To	3031 Cuding	2	
166 123	g	Pro Minety Nine	96.00	rung energies spous was so ran one PVC pipe 80 on long to book ship behading oost and conveyance of all materials, all complete as per standard specifications and as directed by the	198 Nos	8	
187200		Ra FRy Two only	\$2.00	restinated certain contrate (2-4/Che bennet, Two sand and Pour Middig using 20) broken stones, middig, laying properly and compacting for foot pash sales inciding costs of all materies, at labour charges, formwerk charges, welening, curing, incidental expans the cost of reinforcement, complete as per standard appealizations and as discosed by disloge.	36000 Cubic Dard Metres	27	
\$1,2000 -		The One Hundred and Twenty only	120.00	son's as coars including cost a department op	26000 Cubic Daci Matres	- 8	_
		Morde			 -	Ţ	
		Rete in		Guerd-tion of Ward	Quantity (₹	•
				CAPACI MANAGEMENT IN TAKEN PARAMETERS OF THE PROPERTY OF THE P	Problem	ı	
			•	William Photonom Construction of State State States and a section of the last		3	

0	Probable Quantity	Description of Work		Rate in	Unit in Words	Amous
	ļ		Figures (Rappes)	minute.		1
33	822 Cubic Metres	Construction of granular sub-base by providing close graded Material, mining in a mechanical rais plant of OMC, carriage of mixed Material to work site, aprending in uniform layers with motor grader on proposed surface and compecting with vibratory power roller to achieve the desired density, including cost and conveyance of all materials, all labour charges, hire charges, incidental experiess etc. complete as per closes 401 of standard MCRTTH spanifications and as directed by the departmental officers.		Rs Nine Hundred and Sixty only	One Cubic Metre	7891;
já (1028 Cubic Metres	Providing, taying, extracting and compacting graded stone aggregate to well mix macedam specification including premising the Meterial with water at CNIC in inschanical mix plant corriage of mixed Meterial by Spoer to site, taying it uniform layers with power in sub-base / base gourse on well prepared surface and compacting with vibratory roller to achieve the desired density including cost and conveyence of all materials, all labour charges, line charges, incidental expenses etc. complete as per clause 406 of standard MCRTH specifications and as directed by the departmental officers	1112.00	Rs One Thousand One Hundred and Twelve only	One Cubic Metre	11431:
5	- مستقلا	Providing and applying tack cost with bitumen emulsion using emulsion presence distributor of the rate of 0.20 kg pass squares the prepared bituminous/granuler surface cleaned with mechanism including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc. complete as per MORTH specification No 503 and as per the direction of departmental officers	6.25	Re Six and peles twenty Five only	One Square	33011
5	265 Cubic Metres	Providing and leging bituminous mecadem with 100-120 TPH hot mix plant producing an everage output of 75 tornes per hour using crushed aggregates of specified grading premised with bituminous binder, transported to site, faid over a previously prepared surface with power finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired companies are complete as per discussion including dost and conveyance of all materiels, all labour charges, hire charges, incidental expenses ato complete as per MORTH specification No 504 and as per the direction of departmental officers.	4171.00	Re Four Thousand One Hundred and Seventy One only	One Cubic Motre	11053
	133 Cubic Metres	Providing and laying bitaminous concrete with 190-120 TPH betch type tool trits plant producing an average output of 75 tennes per hour using crushed aggregates of specified grading, premised with bitaminous binder @ 5.4 to 5.6 per olant of mix and filler, transporting the hot mix to work also, laying with a hydrostatic power finisher with sensor compot to the required grade, level and alignment, rolling with smooth wheeled, vibratory and landers relates to achieve the desired composition including cost and conveyance of all materials, all labour charges, has charges, incidental propenses etc complete as per MORTH specification NO 500 and as per the direction of departmental officers	6658.00	Re Five Thousand Phre Hundred and Fifty Eight only	One Cubic Matro	73921

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hen Vo	Probable Quantity	Occuription of Work			THE R	7
		Constitution of Section		Rete in	***	
			Tigmes.		,	
38	4 Nos	Providing and fining of retro-reflectorised conflorary, mandatory and informatory sign (50 cm equitorial intengle) as per IRC :57 medic of wide angle micro priematic larse reflective sheeting conforming to typ IX table 3, of ASTM D 4956-01 fixed over elaminism sheeting, 1.5 gam thick conforming to 18 73 clause 1.2.5 supported on a mild steel angle iron goet 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with \$15 grade commit secretarial 55 cm x 65 cm x 65 cm below ground larver as per approved desiring including cost and conveyance of all materials all labour charges, includental expenses etc compile as per standard MORTH specifications and all disear charges, includental expenses etc compile as per standard MORTH specifications and all directed by the departmental officers.(retro reflectorized traffic signs 30* 90 conventingster became		Plas Ted Thousand Phy Hundred and Forty Seven only		1011
30	4 Nos	Providing and fishing of retro- reflectorised conformity, mandatory and following (80 cm equilibrial bings) as per IFC (57 inside of wide engle micro prisonable time reflective electing conforming to type IK sate 3, of ASTM D 4956-01 fised over atuminium attenting, 1.5 mm bibb conforming to 18 738 clause 1.2.5 supported on a mild steel angle from post 75 mm x 75 mm x 6 mm finnly fixed to the ground by means of properly designed foundation with M15 grade content concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing industries cost and conveyance of all mestricism at labour chargest, incidental expenses disc compile as per standard MORTH specifications and as directed by the departmental officers (retro reflectorised traffic signs 60°00 cm rectangular for single	3796.00	Rs Three Thousand Seven Hundred and Mindy Five only	Gech	1518
40		Providing and erecting direction and place identification retro-efficient/head sign with absence than 0.3 Symm as per IRC-S7 made of wide angle micro prismatic tens reflective sheeting conforming to type SC table 3, of ASTM D 4956-01 fitted over abstraint in sheeting, 2 mm thick conforming to 15 736 disease 12.5 with eree not expeeding 0.8 sym supported on a mild sheet single angle iron post 75 x 75 x 6 mm thinly fitted to the ground by means of properly designed foundation with M15 grade connect concrete 5 x 45 x 60 cm, 60 cm below ground level as per approved drawing including cost and conveyance of all measures all labour charges, insidential expenses ets compile as per standard MCRTH specifications and as directed by the departmental officers.	8643.0 0	fto Eight Thousand Eight Hundred and Forly Three only	One Square Matre	\$300
"	•	Welsting V cut joins for the MS rade after cleaning the V cut ands instuding cost of electrodes, electricity charges, hire for welding plant, all labour charges,incidented expenses atc complete so per standard specifications and as per the direction of departmental officers.	162.00	Re One Hundred and Shey Two	<u>~~</u>	30000
2		Filing with clean dry river sand between verge and abstracts including all leads and life, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, included expenses etc, complete as per standard decilications and as directed by the departmental officers.	301.00	Re Three Hundred and Eighty One only	One Catalo	70 00

5	Quantity	indus Package-Construction of Mythrekkadavu bridge across Challyar river in Malapouram Distriction of Work			Web i	Amount
	7		L	Rate in		(Rupess
			Figures			1
	***	Firstifting hand rail and posts with ready mixed places emulsion point over a priming cost after cleaning	(Rupees)	Words		
13	686 Square Metres	complete as per standard apacifications and as directed by the departmental officers	629.00	Rs Six Hundred and Twenty Nine only		43149
أنه	294 Square	Painting with synthetic enamel paint of suitable colour with approved quality two costs including add-	<u> </u>			1
	Metres	isoscilications and as directed by the department, increases expenses etc complete as per standard	\$10.00	Rs Six Hundred and Ten only	Square	17934
5	10000 HP#4	Balling out water in transfers using 5 HP pump including cost and conveyance of fast, oil at infour			Motres	
_		by the departmental officers	21.00	Rs Twenty One only	One Hofte	210000
_	APPENDIX B	APPROACH ROAD	-			6218600
_		Earth work filling with contractor's own earth cut and conveyed from sources of availability and forming				021804
1	15130 Cubic Metres	width, drying or watering as the case insy be, scarfying to get uniform OMC companing the field earth using power roles in toyers not existed again to get uniform OMC companing the filled earth using power roles in toyers not existed gas of income thickness) satisfying compaction tests, including and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	•	Pls Two Thousand and Thirteen only		3045889
	Matres	Collection and supply of quarry muck containing aggregates of size 40% of 60mm metal ,25% of 38mm metal, 10 % of 12mm metal and 25% quarry dust, for rateing the low lying posterors of the read and deep terms agreeding westering, ramming compacting with power roller etc including cost and coveyance of all materials, all lebour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers.		Rs Six Hundred and Minety Two only	One Cubic Metre	788880
	Metres	Earth work excevation in at cleases of soil except hard and madium rock, which require bissing for foundation of retaining wells and depositing with all leads and titls and taking the apost for titling and forming of road wherever necessary including breaking clods, watering, ramning all tabour charges, incliental expanses atc complete as per standard specification and as per the direction of departmental officers	1155.00	Rs One Thousand One Hundred and Fity Five only	Yan Cubic Metres	246015
	O'S COOK	Cernent concrete 1:4:8(One cernent,Four sand and Eight Metal) using 40mm hard grante order stones, mixing, taying property and compecting for foundation of quadrant wall including cost and corresponde of all metarists, all labour charges, watering, curing, formwork charges, incidental expenses inc., complete as per standard specifications and as directed by the separamental officers	2570.00	Rs Two	One Cubic Metre	1734750

	Probable	nden Package-Construction of Mythretitadovs bridge across Challes river in Malagourem District 	}		11 -	
No	Quantity	Description of Work		Rate in	Words	Russe
	<u> </u>		(Cases)	Words		
5	3035 Cubic Matres	Coment Concrete 1:3:0(One Coment Three Send and Six Mestal) using 60 % of 40mm and 49% 20mm hard grantle broken stone, mixing, taying properly and compecting for quadrant well including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses sto.complete as per standard specifications and so directed by the departmental officers	3293.00	Rs Three Thousand Two Hundred and Minely Three only	Cubio	90042
6	80 Cubic Matres	Random rubble mesonry in cament morter 1:6 (One cament, Sb: sand) using hard blasted quarry rightle for foundation and exper structure of retaining wate kinkeling cost and conveyance of all entertains, all labour charges, incidental expenses etc. complete as per standard epocifications and se directed, by the description of officers.	1545.00	Ris One Thousand Five Hundred and Forty State only		12300
7	16000 Cubic Deci Metres	Philn coment concrete 1:2-4(One content, Two send and Four Metal) using 20mm hard grants brightly stones, mixing, laying properly and compacting for top belt of the well including cost and conveyance of all materials, all labour charges, formwork charges, watering, curring, incidental expanses etc, complete as per standard specifications and as directed by the departmental officers.		Rs Forty only	Ten Cubic Deci Metres	40000
8		Providing guised alones of 20x20x120 cm made of CC 1:11/2:3 feinferced with 4 nos HYSD bars and Smin die stirrups at 180mm ofc and fixing in tine and levels 60 cm below the ground level with CC 1:3:5 (450m × 45cm × 60cm) including cost and conveyance of all meterials, all labour charges, incidental expenses etc, complete an per standard experimentaries and as directed by the departmental officers	1794.00	Rs One Thousand Sever Hundred and Minety Four only	Each	69740
9	150 Nos	Applying and fiding high intensity dismond reflectory that of size IRC specification 20cm x 10cm for necreat svalishie size fleat on glassed tiles of approved quality firing to guard atone parapat and median using 1.3., 12mm thick including costs and conveyance of all meterials, all telour charges, incidental expenses als, complete as per standard appoilications and as directed by the departmental efficers.	99.00	Rs Ninety Hine only	Each	14850
ю	Motros	Providing mail markings with hot applied thereo platetic compound 2.50 mm thick including reflectorising glass basis@250 grants per squire more area at the centre are and pedestructures of an activative of surface applied glass basis) and finishing the surface level and uniform the from streams and holes including ocet and conveyance of all materials of about charges, incidental expenses at compute as per standard MORTH specifications and as directed by the departmental officers.	401.00	Re Four Hundred and One only	One Square Motre	75 186
11	15 Cubic Metres	Rough stone dry packing using hard bloosed querry rubble for term portion of approach road negri- bridge including cost and conveyance of all materials, all labour charges, incidental expenses dic. complete as per standard specifications and as directed by the departmental officers	795.00	Rs Seven Hundred and Minety Five only	Orie Cubic Metre	14310

CONTR.	LLOSSEN,	nukus Peckege-Construction of Mythrekkadavis bridge scrops Challyer river in Malappurern Distric			Unit in	Amoun
0	Quantity	Description of Work		Rate is		Ruper
			Pigures (Carees)	Monte		
12	2160 Square Metres	Plantaring with connent mortart;4 (One Coment and Four send) 12 mm thick one cost floated hard and trousled 'smooth for the drain instuding cost and coaveyance of all metarlets,all labour charges,weeting, custing, incidental expenses etc.complete as per the standard specifications and as directed by the departmental officers.		Rs Nine Hundred and Minety Eight only		21586
	455	TOTAL FOR APPENDIX I		1		10000
	APPENDIX C	CONSTRUCTION OF CULVERTS				1
1	290 Cubic	faith work excevtation in all classes of soil except hard and medium rock, which require blasting for foundation of others and depositing with all back and life and using the spoil for filling and toming of road wherever recessing including breaking close, watering, rememby all latitur eleganticidates expenses allo complete as per standard specification and as per this direction of departmental officers	619,00	Ris Six Hundred and Mineteen only	Ten Cutic Metres	1795
2	111 Cubic Metres	Coment concrete:1:4:8(One coment,Four eans and Eight Metal) using 40mm hard grants broken stones,mixing, leying properly and compacting for foundation of culvent including cost and conveyance of all materials, all labour charges,vetering, curing, formwork charges, incidental expenses—sto, complete as per standard specifications and as directed by the departmental officers.	· ·	Rs Two Thousand Five Hundred and Seventy only	Cubic	28621
3	315 Cubic Matres	C.C 1:3:8(One Coment, Three Sand and Six Missal) using 60 % of 40mm and 40% 20mm hard grante broken stone, mixing, bying properly and compacting for culvert including east and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	3463.00	Rs Three Thousand Four Hundred and Stity Three only		10908
•		VRCC M 20 design mix for current using 20mm hard grantle graded broken stone as coarse aggregate and river strict as fine aggregate, mixing , teying its position and compacting including cost and conveyance of all meterials, all bebour charges, watering, ouring, formwork charges, incidental expenses Stc. completes per elevators specifications and as per the direction of departmental officers but sackleding the cost of reinforcement.	51.50	Rs Filly One and pales Filly only	Ten Cubic Dagi Matres	2163
5	195 Chimpes	Providing reinforcement for RCC work seing TMT steel bend, tied and placed in position including cost and conveyance of all materials, all tabour charges, incidental expanses, complete as per element specifications and as directed by the departmental officers	4571.00	Rs Four Thousand Five Hundred and Beverity One only	One Cuintal	47000
8	Manage	Rough stone dry patising using hard blassed quarry nubble for bed of outvert including cost and conveyence of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the descrimental officers		Re Seven Hundred and Mindy Five enty	Grie Gutaç Metre	1431

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<u> </u>	Guentty	Devertation of Work		Rate in		Amount
			Figures (Rapes)		-701	100
7	2 Cubic Motos	Papelons relate mesonry is coment menter 1:8 (One objects, Shr send) using hard blossed-query subble for curtain wall including cost and conveyance of all materials, at tabour charges, inclines expenses etc. complete as per standard specifications and se directed by the departmental officers	1546.00	Pis One Thousand Pive Hundred and Porty Six only	One Cubic Maire	3002
	APPENDED	TOTAL FOR APPLIANCE C				210772
	Allbest seels				ļ	
1	1908 Cubic Metres	Paragh stone dry packing using hard biseted querry rubble for bed of siver near bridge including cost and conveyance of all metarists, all labour charges, incidental expenses etc., complete as per standard specifications and as directed by the descriptional officers.	795.00	Rs Seven Hundred and Minety Five only	One Cubic	151000
-	6-Més arabe	TOTAL FOR APPRIOR DIA)				181000
1		Earth work excevation in all aleases of soil except hard and medium rock, which regales bleeding for foundation of side protection wall and depositing with all teads and title, and using the spoil for filling and forming of road wherever necessary including breaking clock, watering, remming all tebburchespee, included apparatus of the protection and as per the direction of constructed officers. Supplying and steaking account place of also 200 to 500mm diameter on the also including office not	619.00	Rs Six Hundred and Nineleen only	Ten Cubiq Militas	198060
2		conveyence, an accour charges, incidental expanses etc. complete as per standard specifications and	90.00	Rs Ninety only	One	115200
3	1289 Matrus	Orbing down occurs plus 200 mm to 300 mm diameter to approved thes and levels through various stress efter pointing the bottom and up to 8 m depath below the ground toval trotuding all labour charges and live charges for fixing staging platform and all other appliances necessary for pile driving, incidental expenses etc. complete se per standard epositications and as directed by the departmental officers	245.00	Re Two Hundred and Fony Five only	One Metre	313000
	Metres	Filling with close dry river send over the plies including at leads and lifts, cost and conveyence of send, consolidating and firshing the top to the required tovels, all tebour charges, incidental expenses etc. complete ad per etendand epocifications and as disasted by the departmental officers	370.00	Re Three Hundred and Seventy only	One Cubic Metre	103970
	186 Cable Molres	Reinforced cement concrete 1:24(One cement, Two send and Four Metal) using 20mm hard granite broken stones, mixing, laying properly and compecting for foundation including cost and conveyance of all materials, all labour charges, formwork charges, watering, curing, incidental expenses etc, excluding the cost of reinforcement, complete se per standard specifications and as directed by the departmental officers.	3065.00	Re Three Thousand Mine Hundred and Fifty Five only	One Cubic	616980

M	Probable					Amount
. [Quantity	Description of Work	<u> </u>	Rate in	Words	(flupees)
			Figures (Rusees)	Words	<u> </u>	
6	2160 Cubic Matres	C.C 1:3:0(One Coment, Three Send and Six Meta) using 69 % of 40mm and 40% 20mm hard grantes broken stone, mixing, leging properly and compacting for super structure of retaining well including cost and conveyance of all metarists, all labour charges, form work charges, watering, curing, incidental expenses sto.complete as per standard specifications and as directed by the departmental officers	2934.00	Rs Two Thousand Nine Hundrad and Thirty Four only	One	6337440
7	526 Quintals	Providing reinforcement for RCC work using TMT elset bend, lied and placed in position including cost and conveyance of all assesses, all tabour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	4671.00	Re Four Thousand Five Hundred and Seventy-One only	One Quintal	2404348
8	600 Maires	Supplying and fixing weep holes in the CC retaining well with 63 mm dis PVC pipe (Skiptiom2) including cost and conveyance of all resteriors, all teleour charges, inclidental expenses etc. exceptible as purished the property of the control of the property of	63.00	Ra Shity Thrae only	Each	37800
ė	30000 HP/Hr	Selling out water in transities using 5 HP pump including cost and conveyance of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and se directed by the departmental officers	21.00	Ra Twenty One only	One Hp/hr	630000
	 	TOTAL FOR APPENDIX DIBI				10767418
	!	TOTAL PAG (A-B-C-D.)				8345786
		DEDUCTION FOR DEPTL MATERIALS & HIRE CHARGES OF TAP				1127340
	 	HET PAC		<u> </u>	- Rie	82350313
•	15 67 MT Blb.	ARTHENTAL MATERIALS AND HIRE CHARGES OF TAP THEN NRMS @ Rs 28773.00/ MT =Rs 450873.00 Add tender stone 17% above tender of tender stone 17% above 17% above tender stone 17% above ten	Betima	R _{M=} I		, 153-y
3	19.20 MT Blu 141 Days Ross	men 80/100 @ Rs 25200.00 Mil and south of departmental mar Roller @ Rs 2680Dey = Rs 8468.00 and hire charges of Take	teriel:	******	11,27	, 349-00
	Total Amoun	=Rs 1127349.00 Agreed	PAC	Re.	9,74,5	3.815=(

Remodel by order Example Sentant

Minutus-Padauji-Compenication of Mythredisedors bridge across Chaliput river in

TOTAL LEGISLES OF THE PROPERTY	Surp. Contractor.	P.O. WortsChode	Sirverna, Malacreza	- Matrice
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	discourse.			•
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a '	# 20		***********************************	- The State of the Parish and the Pa
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e)	Sweeten Personal		g	
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loss cost of Departmental materials and all tille charges for departmental tools and plant epocified to be supplied and recovered at the rates given in the conditions enclosed?

I / we also agree that the tender expectification may be applied on the empiral obtained after deducing the cost of all Departmental materials and all him charges for descriptionals bods and about from the total amount of the work worked out at the rate given in the schedule attached to the fender.

NOTE

- 1. "Strike out which is not applicable.
- 2. The rate may be quoted in words and figures.

No. of Correlation

No.of Overselling

SG/A-

80/-

SUPERINTENNIC ENGINEER, RW.D(ROADS & ERIDGES) NORTH CIRCLESIANS-1 forwarded/ by Order

Parents Mala w

Attachment to Para No.5.9 &5.11 (page 44-39 of the attachment related to Para No.5.9 and page 64-77 related to page 5.11)

1 0034/2017/08-PWD

Construction of Umminiskedayuv Bridge across Kedalund river in Metappuram District

	SCHEDULE OF W	ORICS				
SI. No.	Description of work	Na.or City.	Unit	Es	Estimated Rate	
			<u></u>	flavo	Words	
1	Appendix A: Bridge Proper. Forming island of size 46.5 mort0.6m outer side for an everage height of 2 m min 75cm show water level by driving down task weed posts close III of girth 11 to 52cm to an average deeps of 2m below had level at 60cm or for posts and 2m ofo for struct and tring with test wood posts 50cm ofe to vertical posts already driven down and acreaning with double bamboo mat with recessary bamboo respect provided at required inservate and filling inside with earth including all cost; conveyance hire and lebour charges and at other including maintaining the fire istend III the completion of work and demotition and clearing the isant after completion of work as per standard specifications and as directed by the departmental officers.	3	Nos	446710.00	Rupees Four Lath Fausty Six Thousand Baven Hundred & Ten Only	1340130.00
2.	Earth work excession to all classes of soil except herd and medium rook, which require integing for methopolising with all leads and life for abusiness and using the spoil for tiling and forming of road wherever necessary including breaking clods, watering, ramining all labour charges, incidental expenses etcomplete as per standard specification and as directed by the departmental officers.					
	2a) initial depth 1.50m	540	MS	106.30	Rupees One Hundred & Stx - Palee Thirty Only	67402.00
٠	2-b)First depth 1.50m	462	M3	140.00	Rupees Only Hundred & Mineteen Only	54978.00
	2cjSecond depth 1.50m	338	M3	131.70	Purpose One Hundred & Thirty One - Palse Seventy Only	44514.60



Construction of Umministradevuv Bridge across Kedatundi river in Meteppurem District

		·		·		
3	Supplying and fixing MS angles of size 180 x 180 x 12 mm for unling region well our including cost and conveyance of materials citizing banding for requised stated welded and bonded to recreate using 12mm; downless have welding, shifting and fixing charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers.	92	Ctt	6562.00	Rupees Six Thousand Five Hundred & Sixty Two Only	209904.00
•	VRCC 64 25 deeign mix for mouding was larb using 20mms hard granter granter granter granter granter strong as courte aggregate and river sand as fine aggregate, mixing, laying in position and compacting including cost and conveyance of all materials, all labour charges, watering, ouring, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	107	M3	8350.00	Rupees Eight Thousand Three Hundred & Fifty Only	593450.00
5	VRCC 66 20 deelge sels for moutding wall steining using 20mm hard grantle graded broken atons as charae appropria and river sand as like appropria mining, laying in position and compacting inchalling cost and conveyance of all estentials, all labour charges, wellering, curing, formwork charges, lackbertal expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as per the direction of departmental officers		МЗ	\$100.00	Rupees Eight Thousand One Hundred Only	5447600.00
•	Sinting of RCC circular well 8.5 m outer die 8.5m inner die (M25 mbt) for foundation of abutments in all classes of soil other than rock to lines and telvels and plurale by accepting out earth from inable and below staining with dragger or any other appliances including hire charges, telbour charges, dewettering, cesting, vibrating, removed of obstacles, dumping the apil at suitable places with all leads and title, incidental expenses stc, complete as per standard specifications and as directed by the departmental officers					
-	Ba)(nitial depth 3 m	6.	M	24701.00	Rupees Twenty Four Thousand Seven Hundred & One Only	148208.00
-	(ib) First depth 3,00m to 4.50m	3	M	20004.00	Rupers Twenty Eight Thousand &Four Only	84012.80
	Bc) Second depth 4.50m to 6.0m	3	м	31300.00	Pupeds Thirty One Thousand Three tourdeed & St. Only	93018,00

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to page 5.11)

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Construction of Umministradevuv Bridge across Kadalundi river in Melappiram Classics

10/128

				120	· · · · · · · · · · · · · · · · · · ·	
· 	6d) Third depth 6.0 in to 7.50m.	3	M	34809.00	Rupass Thirty Facir Thousand Six Hundred 8 Nine Only	103827.00
_	Se) Fourth depth 7,50m to 9.0m	28	M	37912.00	Planes Thety Seven Thousand Nine Hundred & Twelve Coty	99571.20
	60) Filth depth 9.0m to 10.50m	1.5	М	41215.00	Propose Fourly One Thousand Two Hundred & Filteen Only	61622.50
	6g) Shith depth 10.5m to 12.0m	1.5	M	44518.00	Rupees Fourly Four Thousand Five Hundred & Sighteen Only	65777.00
	Oh) Severath depth 12m to 13.5m	0.6	M	47821.00	Rupane Fourty Seven Thousand Sight Hundred & Teresty One Only	28682.60
7	Striking of RCC circular well 6.5 m outer die 4.5m inner die (MG6 mbg) for foundation of plars in all classes of soil other than rock to lines and levels and plumb by eccepting out earth from traitie and below staining with dredgars; or any other applicaces including him charges, fabour charges, designation, casting, vibrating, removal of obstacles, dumping the application and life, incidental expenses etc. complete se per standard specifications and as directed by the departmental officers.				•	
	7a)Initial depth 3 m	9	M	21679.00	Rupese Twenty One Thousand Six Hundred & Seventy Nine Only	196111.00
	75) First depth 3.00m to 4.50m	4.5	M		Rupees Twenty Four Thousand Seven Hundred & Fourteen Only	111213.00
·	7c) Second depth 4.50m to 6.0m	4.5	M	27749.00	Rupees Twenty Seven Thousand Seven Hundred & Fourty Nine Only	124870.50

Contract

81/126

Construction of Umminiskadevur Bridge across Kadakandi river in Meleppuram District

53//201	7/08-P	WD Construction of Umministrational Entropy account		•		Rupuss Thirty	
		7d) Trind depth 6.0 m to 7.50m	4.5		30784.00	Thousand Seven fundred & Eighty Four	130020.00
. }		(7e) Fourth depth 7.50m to 8.0m	4.5	M	33819.00	Rupate Thirty Three Thousand Elekt Hundred & Minuteen Only	152106.90
-		77) Filter depth 9.0m to 10.60m	2.2	м	36856.00	Rupage Thirty Six Thousand Eight Hundred & Fifty Five Only	51061.00
-		7g) Shith depth 10.5m to 12.0m	0.3	M		Rupous Thirty Hine Thousand Eight Hundred & Minety Only	11967.00
		Providing MS dowell bers with 25 mm M.S rads 2.50 m long plugging 1.0m in the hard rock and 1.50 m in to concrete @ 1 m ofc after drilling 50 mm die hotes in granter rock including cost and conveyance of all metartals, all tabour charges including cutting the rode in to required length and fluing the rod in to costion, incidental expenses etc. complete as per standard epocifications and as directed by the departmental officers.	223	Nos	737.00	Rupees Seven Hundred & Thirty Beven Only	184381,00
	9	C.C. Mris Grade mix for bottom plugging of well using 20mm hard granter broken stone including cost and conveyance of all materials, lebour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per 8st. Specification and as	. 350	M3	6600.00	Rupees Six Thousand Six Hundred Only	2310000.0
ł	10	directed by the departmental office(s). Chiloping and removing extra projection of well staining without damaging the remaining portion including at labour charges, thre charges, incidental expenses etc complete as per Std. Specification and as directed by the		мз	3800.00	Rupees Three Thousand Eight Hundred Only	108400.00
	11	departmental officers. Filling inside the wells with clean dry river sand inducting all leads and life, cost and conveyance of sand, consolidating and lineating the top to the required leads, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental citizens.		мз	1333.00	Rupees One Thousand Three Hundred & Thirty Yorke Only	1801677.0

82/128

10054/2017/08-PWD

Construction of Umministradevur Bridge across Kadelundi river in Mateppuram District

	* * * * * * * * * * * * * * * * * * *	4				
	G.C. MAS Grade celt union 20cm hard organia broken etones Grade mix for					
12	top pagging of well including cost and conveyence of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required tevels with all charges etc. complete as per Std. Specification and the direction of the dept. officers.	37	Mt3	6400.00	Rupees Six Thousand Four Hundred Only	236800.00
13	VRCC M 30 design rink for moulding well cap using 20mm hard grantle graded broken stone as course aggregate and river sand as line aggregate, intelling, laying in position and compacting including costs and conveyance of amparists, all tabour charges, busseling, curing, tormwork charges, incidental expenses etc. comple but excluding the oast of reinforcement as per element appendications and as directed by the departmental officers.	460	143	7280.00	Rupees Seven Tripusand Two Hundred & Filly Only	3336000.00
14	VRCC M-20 design mix for moutring abutment and solid wing well using 20mm hard grantle graded broken stone an coarse aggregate and river sand as fine aggregate, mixing , laying in position and compecting including cost and conveyance of all materiats all tabour charges, watering, ouring, formwork charges, incidental expenses etc. complete but excluding the cost of retrigionment as per standard expectional and as directed by the departmental officers.	377	МЭ	696 0.00	Rupers Six Thousand Mine Hundred & Fifty Only	2020150.00
15	VRCC M 30 design mix for moutding plan and plan cap using 30mm hard grants product brotton stone as course aggregate and store sand as time aggregate, mixing in judging in position and composing including sost and conveyance of all metarists, all tabour charges, vistering, curing, formworks charges, incidental expenses stc. complete but excluding the cost of ministropement as per standard apacifications and as directed by the	203	МЗ	10100.00	Rupees Ten Thousand One Hundred Only	2050300 00
16	VRCC M 25 design mix for moulding abutment cap using 20mm hard granital graded brotten stone as coarse aggregate and river send as fine aggregate, mixing , taying in position and compacting including cost and conveyance of all materials all labour charges, watering, curing, formwork charges, incidental expenses etc. complets but excluding the cost of reinforcement as personnel expenses atc. complets but excluding the cost of reinforcement as personnel expenses.	8	M3	8 100.00	Rusees Eight Thousend One Hundrad Only	648C3.33

83/126

0054/2017/08-PWD

was a construction of the second seco

				4		
	VRCC M 25 design mix for mouthing dirt wall using 20mm hant grants graded broken 1100c as norms aggregate and their cond as fire aggregate, mixing:					
17	TO PURE THE STO COMPOSTING INCIDENCE COST and CONVEYENCE OF ST	,,	M3	9550.00	Rupees Nine Thousand Five Hundred & Fifty Only	210100.00
18	VRCC M 30 design mits for moulding pedestal using 20mm hard grante graded broken atone as course aggregate and river sand as fine aggregate, mixing, laying in position and compecting including cost and conveyance of all materials, all labour charges, welening, cirring, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers		мз	7900.G3	Rupees Seven Thousand Nine Hundred Only	47400 00
19	Supplying and fixing electronetric bearing of size \$00mm x 350mm x 95mm compressed in three layers of mixture laminetons each 3mm thick and two layers of electronetric pade 12mm thick in between metal plates and with 3mm thick outer electronetric cover at top and bottom and 6mm thick electronetric cover altours and bottom and 6mm thick electronetric cover altours including cost and conveyance of all meterials, all tabour charges, hire charges, incidental expenses etc complete, as per standard specifications and as-ellibrited by the departmental officers.	24	Nos	1200011	Rupees Fifteen Thousand Only	380000.0C
20	VRCC M 25 design mix for moutding T beam, deck sleb, kerb etc using 20mm hand grante graded broken stone as coerse aggregate and river sand as line aggregate, mixing , laying in position and compacting including cost and conveyance of all materials all labour charges, watering, curing, formwork charges, incidental expanses etc. complete but excluding the cost of resindocement as per standard specifications and as directed by the departmental officers.	364	143	22800 SC	Rupees Twenty Two Thousand Eight Hundred Only	8299200.00
21	VRCC M 20 design mix for moutding handrall using 20mm hard grantle graded broken stone as coarse aggregate and river sand as fine aggregate, mixing, laying in position and compacting including cost and conveyance of all materials, all labour charges, watering, curing, formwork charges, incidental expanses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers.	20	мэ	12000 OC 3	hupees Twelve housand Only	240000.00

Contrac

Page 6

Superintending Engineer

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	Supplying and floing draingay spouts with 63 mm dia PVC piec 60 cm lone with		-	·	
22	GI gratings of 150x150 mm size for deck slab including cost and conveyance of all meteriats, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	1	Nos	57.00	Rupees Fility Sever
23	Providing reinforcement for RCC work using TMT steet, fusion bonded and epoxy coeted bend, sed and placed in position including cost and conveyence of all materials, all lebour charges, incidental expenses, complete as per standard specifications and se-directed by the departmental officers		CXII	6855.00	Ruppes Six Triousan: Eight Hundred & Fin, 16826
24	Welding V cut joints for the MS nots after cleaning the V cut ends including cost of electrode, current charges, hire for welding plant etc.complete as per standard especifications and as per the direction of departmental officers	192	Nos.	252.60	Rupees Two Hundrez
25	Providing expension joint between spans with Aluminium sheet 16 gauge 7.50 cm long and 65 cm wide(weight of sheet 7.50x0.5xx3.40 log/m2)pecking in position, cutting that same in position with stot and 10x8/mm at 36cm centre to centre and filling the joints with mixture of blumen, send and saw dust including cost and conveyence of all materials, all lebour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers.	42	М	1193 22	Rupees Ore Thousand One Hundred & Ninet, Three Only
25	Providing and laying 80mm average thick bituminous concrets wearing cost over the carriageway with heavy seal cost using 24mm broken stone 0.36 m3, 18mm broken stone 0.245 m3, 6mm broken stone .09 m3premised with hot bitumen (48Kg/m3) 71.86Kg/m2 including a tack cost of 2.95Kg /10m2, rolling to a dense surface including cost and compyance of all materials, all lebour charges, hire charges of roller, mitter, wheel barrows, incidental expenses stc, complete as per standard specifications and as directed by the departmental officers.	670	M2	474 \$-:	Rupees Four Hunorac 8. Seventy Four - 3:5:2::: Paise Ninely Only
27	Painting with synthetic enemal paint of suitable colour with approved quality two costs including cost and conveyance of all materials, all labour charges, incidental expanses etc complete as per standard specifications and as directed by the departmental officers	840	M2	90.00	Rupeles Ninety Only !*;::::
26	Bailing out water in tranches using 5 HP pump including cost and conveyenve of fuel; oit all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	10000	HP hr	31,00	Rupees Thirty Ona

-114-

			•	: 		
29	Rough stone dry packing using hard blanted quarry rubble for becomparished approach road near bridge including—all broad charges, incidental expenses one—complete at per standard apacitications and as directed by the identification of the process of the period of the	1320	мз	1479.00	Rupees One Thousand Four Historied & Seventy Nine Only	195226: :
	Total for Accordin A= 46676977.36					
	Angendix B-Approach (994		-			
1	Earth work filling with contractor's own earth out and conveyed from sources of availability and forming embantament with all leads and lifts by spreading in instructional squere of uniform thickness area the full width, drying or watering as the ones netly be, societying to get uniform OMC including birmhing slopes to little and levels including bost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and se directed by the departmental officers.		МЗ	303 00	Rupees Three Hundred & Three Only	336330 0
2	Cornepcing the filled earth with power roller in layers not exceeding 25 cm (toose stickness) satisfying compection tests, including trimming slopes to lines and tevels including cost of oil, fuel stc, hite charges of roller, all isbour charges, incidental expanses etc complete as per standard specifications and as directed by the departmental options.	550	мз	8 53	Rupees Nine - Palse Eighty Only	5390.00
3	Collection and supply of quarry muck including stacking on the read wides in standard heaps for measurement for filling the low lying portions of the read and conspacing with power roter including cost and conveyance, all labour charges includental expenses also complete as per standard specification and as directed by the departmental officers.	269	143	871 DC	Rupees Eight Hundred & Seventy One Only	134227 :
8	Earth work excelledon in all classes of soil except hard and medium rock, which require blesting for foundation of retaining wall and depositing on bank with all lead and title and using the spoil for filling and forming of nead wherever necessary including breaking clods, weiering, remaining and sectioning of spoil bank including all conveyance charges, incidental expenses also complete as per standard specifications and so directed by the departmental officers.	513	M3	108 30	Rupes One Hundred & Stx - Page Only	6453180
4	Coment contents 1:4:5(One centent, Four sand and Eight Metal) using 40mm hard granite broken stones, mixing, taying properly and compacting for foundation of retaining wall including cost and conveyance of all materials, all labour charges, varieting, curing, formwork charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers.		M3	4379.00	Ruppes 5:25 Thousand 7:56 Hundred & Severy Have Only	5°£502 00

140534/2017/OS-PWD

Construction of Limministratous Bridge across (Crostotts Ster in Matachuren Dissis-

5	Compant Concrete 1:3:8 One Commit. Three Send and Six Metal) using 60 % of 40mm and 40% 20mm hand granite broken elone, mixing, leying properly and compacting for repedicant was including cost and conveyance of at metalias, at labour charges, form work classes, watering, curing, incidental expenses etc. complete so per etandard specifications and as directed by the discentional officers.		мз	6228.00	Rupees Five Thousand Two Hundred & Twenty Eight Only	3941912 00
8	Collection and supply of 60 mm hard grantle graded metal in the ratio of 7:3 of 60mm and 36 mm metal by volume respectively and stacking on the sides of rould in standard heaps for pre-measurement including cost, conveyance, all tabour charges, incidental expenses etc complete as directed by the decerminated officers	78	M3	1067,00	Rupees One Thousand & Sudy Seven Only	83226.00
,	Collection and supply of 35 mm hard grantle broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour oberged, incidental expenses sic complete as directed by the departmental officers.	75	M3	1160.00	Rupees One Troveand One rundred & Stray Only	87000 00
	Supplying and stacking good gravely red earth for binding and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental sepances etc complete se directed by the departments officers	27	M3	374.00	Ripage Three Hindred & Seventy Four Only	10000 00
9	Metalling the roadway 100 mm thickness compacted to 75 mm using broken telone, graded grantle atone in the ratio 7:3 of 60 mm and 35 mm also respectively) 1m3 per 10m2 and departmental binding metantial at 0.20m3 per 10m2, but of the stores to template, rolling dry to compaction from aldes to centre until the movement of hooten atone cases, wasering profusely and re rolling until the innex cream up and fill the voice of the store, then spreading the gravely earth has worked in to all crevices and a thin cost of sturry remains, then take off the roller and allow the surface to set to harden for 24 hours and re rolling next day until any deformity is recitied inskiding froning, lighting, wetching, hire charges, cost and conveyance of all matricular, all labour charges, incidental expenses etc complete and matricularing the surface tree from ruts for 15 days after completion as per standard specification and as directed by the departmental officers/ for subbless).	772	M2	62.90	Purpose Shity Two -	48558.80

0634/2017/08-PWD

Construction of Umministradevuv Bridge across Kadelundi river in Melappurem District

	···					
10	Interesting the receivey-100 rang magnitude Compacing to 75 mm using broken stone 36 mm size, 1m3 per 10m2 and departmentel binding greaterist at 0.15m3 per 10 m2, bed rolling, spreading broken stones to template, rolling day to compaction from sides to centre until the movement of broken stones coses, wetering protectly and re rolling until the times oream upland sit the voide of the scione, then apreceding the gravely earth set worked in to the joints, watering end in rolling until the gravely earth has worked in to the joints, watering cost of sturny remains, then take off the roller and allow the surface to set to harden for 24 hours and re poling next day until any deformity is rectified including tending. Sphiling, watching, her charges, cost and conveyance of all materials, all labour charges, incidentel expenses are complete and maintaining the surface free from rule for 15 days after completion for sub lates as per standard apscification and as directed by the departmental difficuencion base course).	750	M2	62.90	Flugace Staty Two - Paise Ninety Only	47175.C
11	COUNTRICO SI CASON CAMPAC ANTONION AND ANTON	21	M3	1740.00	Ruptes One Thousand Seven Itundred & Fourty Only	36540.0
12	Collection and supply of 6 mm size hard grantle becam some and successing or the aides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expanses sit complete se directed	7	M3	1449.00	Rupees One Thousand Four Hundred & Fourly Hine Only	10143.0
13	by the decemberabl officers. Providing 20mm pris missed chipping carriest over W.B.M surface with departmental broken stone after bicroughly cleaning the base with wire departmental broken stone after bicroughly cleaning the base with wire finuates, brace brocons and applying a printing cost of 7.50ftg of bitumen/10 int2 and spreading the premiscitemed of 0.27m3 of 12mm metal and 12.98kg of bitumen/10m2) rolling to a dense surface then spreading the seal cost (comprising of a hot premisc of 0.09m3 of 5mm departmental metal and 8.64 kg of bitumen/10m2) again rolling isolationing cost and conveyance of bitumen, oil, fixet etc., all lebour charges, hite changes of brace brootine; camber board, roller and other machineles, watching, lighting, incidental expenses etc. complete (lots) usage of bitumen 29.10 Kg/10 m2.) se per IRC specification sind as directed by the departmental officers.		MZ	161.90	Rupses One Hundred & Staty One - Palse Minsty Osly	121-125 0:

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

101	7/Q8-	PWD Construction of Umministracionar Sridge across	Kadalund	i rivjer in h	Adapturers (Hatrict	88/1
-	.16	Examing precest guard-stones of 20/20/000 on made of CC M 20 using 20 mm hard grantle broken stone with 4nos H/YSD bars 10 mm dis and 6mm stimps graced level with CC 124:8 (45cm x 45cm x 50cm) including cost and conveyence of all materiels, all isbour charges, incidental expenses etc. corruption as per standard abscritications and as tilrected by the departmental officers.	20	Nos	1808.00	Rupees One Thousand Eight Hundrad & Nine Only	
1		Total for Appendix 8= 6928608.7					
I		* TOTAL PAG (APPX A+B+)					81906488.80
Į	. ,	Deduct Cost of Department Meterials and Hire Charges for Department			•		93706.00
1		Net PAC					\$1511720.60
ſ		Tender variation (@ Estimate rate)					140
		Add Cost of Department Meterials and Hire Charges for Department					93766,00
r		AGREED PAC					81606406.60
ľ							51506457.00
F	`	DETAILS OF DEDUCTION FOR DEPARTMENTAL MATERIALS AND HIRE CHARGES OF TAP			· .		
ı		2.183MT Bitumen VG 10 @ Rs 37073/ MT =Rs 80930.00				T	
1		5 Days Roller @ Rs 2392/ Day #Rs 11960.00					
Ε		1 Days Boiler & Sprayer @ Rs 35.66/ Day #Rs 36.00		I			
		3 Days Wheel Barrow & Rs 3.45/ Day =Rs 10.00					
L		1-Days-HM plant @ Rs 830/ Day =Rs 830.00					
L		Total Amount =Rs 93766.00				1	

0564/2017/OS-PWD

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	is cost of Departments	al materials and all hint	change for d	enertmental i	nois and plan	t specified to be	supplied	and recov	ered at the r	ales given	in the condition
nclosed	SCHOOL STORY OF STREET	BI MARSHANS SEND BIR FIRE	CUMP Des IOI O	Often extension o	out and pro-						100

NOTE:

*Strike out which is not applicable.

The rate may be quoted in words and figures.

No. of Correction

No. of Overwriting

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SUPERINTENDING ENGINEER, P.W.D(ROADS & BRIDGES) NORTH CIRCLECalic ut-1 05

Additional details to PAC regarding Para 5.5 of Audit Report of the year 2015-16 of PWD

Draft para 5.5 is regarding the inadmissible payment to Contractor on balance item of Bridge work- "Construction of Varamkadavu Bridge and Approach Road in Chelora Panchayath" in Kannur District.

The Original work "Construction of Bridge at Varamkadavu in Chelora Panchayath in Kannur District was awarded for execution to M/S Kerala State Construction Corporation Limited vide agreement No SE(K)-33/2002-03 dated 21.2.03 and site hand over on 04/04/2002. The work consists of construction of Bridge proper and approach Road totaling 476 meters. Contractor of this works M/S Kerala State Construction Corporation Ltd completed the work of Bridge Proper in March 2005 and could not done forming the approach Road due to the reason of sub soil failure.

As already mentioned above, the original estimate of work Varamkadavu Bridge consists of bridge proper which included the construction of bridge structure such as foundation, sub structure and superstructure based on the detailed design prepared as per the result of sub-soil investigation done only at abutment and pier points. No sub-soil investigation was conducted along approach connections which are passing through waterlogged, marshy areas and also through areas submerging under water during tidal actions. The original Administrative Sanction was accorded based on a rough cost estimate for the work without any detailed sub-soil investigations done at site in respect of the approach road. So the Administrative Sanction amount received was not sufficient to cover all the provision for the construction of bridge proper, whose estimate was as per design prepared after obtaining the

Administrative Sanction. The statement amount left from the Administrative Sanction amount only was available for the construction approach roads. So only minimum procession of earth filling for forming approach roads based on tape measurements were given in the original work entrusted to M/S Kerala State Construction Corporation Ltd.

When M/S Kerala State Construction Corporation Ltd. Failed to form approach road owing to sub soil failure. The opinion of Geo Technical expert was sought. He studied the sub soil conditions at site which consists of deep layer of soft, highly compressible clay with high water content and proposed ground improvement works using Pre fabricated Vertical Drains (PVD) with woven and nonwoven Geo Textiles in order to accelerate the primary settlement due to consolidation process dissipating pore water pressure from clayey strata and thereby attaining rapid increase in the strength of sub soil.

The Revised estimate in corporating those items necessary for ground improvement which are included as per the suggestion made by Geo Technical Experts and based on SOR 1999 was sanctioned by Government on June 2008. But Kerala State Construction Corporation Ltd did not resume the work as they demanded enhancement of Agreed Rate. Meanwhile one Mr. D.V.Muhammed Ashik from the locality approached the Hon'ble High Court of Kerala praying for directing PWD to complete the work in all respect and the Hon'ble High Court of Kerala in the order in WP@No.8266 of 2008 directed PWD to complete the work within 9 months and later extended the date to 10.2.2010. Hence, after several communication between PWD and Kerala State Construction Corporation Ltd, and also based on the decision taken during the meeting by the Hon'ble Minister for Public Works Department on 29/11/2008 and taking into account the order in the judgment by the Hon'ble High Court of

Kerala, the contract agreement with M/S Kerala State Construction Corporation Ltd was terminated at the Risk and cost of contractor by the Superintending Engineer vide Order No. DCE -2524/98 dated 30.10.2008.

a) Audit Note: Unjustified revision of Quantity of earthy work and rates:-

After terminating the contact, with M/S Kerala State Construction Corporation Ltd., the balance estimate according to the sanctioned revised estimate was prepared for the construction of approach roads. By the time of preparing balance Estimate: ie, some changes took place along the surroundings of the river portions. These marshy portions, along which the approach road is to be formed, got changes due to continuous submergence under water and due to tidal effects. In the balance estimate for construction of approach roads also no detailed level calculation was done towards arriving Earth work quantity due to peculiar site condition and only lumpsom provision towards embankment settlement given as it was not possible to know the exact final settlement of embankment prior to the completion of ground improvement works. A Provision of 34000m3 earth filling was proposed in the balance estimate. This quantity increased to 38141m3 when initial levels were taken at close intervals on awarding the work. One of the reasons for this was due to changes in the topography of the marshy and tidal affected areas where embankment was to be formed since the termination of the original contract with M/s. Kerala State Construction Corporation Ltd. Another reason was that the LS provision given to account for settlement after ground improvement. Also the bottom width of formation at high embankments were increased from that in the original proposal so that the area subject to submergence will increase and that will reduce the

over burden pressure at the ground level. These were the reasons for the increase in the quantity to 38141m3. Further it was decid in construct/improve the approach road at Varam side for an additional length of 50 meters, so as to complete the work properly, this necessitated additional earth work and thus, the final quantity of earth filling was increased to 54174,38m3. The initial levels were taken before commencing the ground improvement works. The settlement of the clayey sub soil underneath the ground level will start only after preloading over the embankment portion and the settlements were measure using settlement gauges fixed at interval installed at the ground level. The design of the ground improvement is based on achieving 90% consolidation in the time prescribed and the final settlement is measure using settlement gauges. So the final quantity of earth filling could be known only after completion of the settlement after a time interval and completion of the final embankment construction. The behavior of the clayey strata is highly complex in nature and deepens on the properties of the clayey soil which varies from point to point. So study of the exact quantity of the settlement and behavior of the clay soil underneath the formation and its design will take more time and involves tedious task for conducting detailed study of the various properties of the clayey strata on the entire formation areas.

The approach road alignment is through marshy, water logged portions subjected to tidal actions. So while progressing the earth filling, there were heavy loss of earth dumped on the approach alignment due to initial mixing with loose and soft marshy top soil & losses due to tidal effect and due to initial settlement. The loss of dumped earth along the sides could not be arrested as it was not possible to do side protection works at the toe of embankments

before attaining the primary settlement. This is being the situation at site; the contractor claimed a wastage of 50 % total earth work quantity. But the department considering all the facts limited the percentage of wastage to 25 % of the total filling quantity with the approval of Chief Engineer. Further, since embankment formation for approach road is done along submerged and loose and marshy soil subject to tidal action, it was not possible to qualify and measure the earth lost. It was finally decided to allow 25% increase on the agreed date revising the agreed Rs.2424/10m³ and approved vide order CE/R&B/KNR/16956/2002 dated 09/10/2009 as extra items. It was also ordered to give estimate rate for all the sanctioned extra items and this was subsequently upheld vide Govt. letter No. 25592/D1/09/PWD dated 18/2/2010.

The reason that attributed for the enhancement of the quantities of earth filling is different in each situations starting from the original estimate preparation till the end of final formation of embankment. There is no loss to Government due to this, as correct stable and more advanced technology which was also a new technology in PWD had been adopted in the construction. An alternative to this method is by increasing the length of bridge spanning over the entire water logged marshy portions which will be more expensive than the ground improvements works. Hence considering all the above, Chief Engineer has revised the rate for earth work filling.

b) Unjustified change of design, quantity, rates for ground improvement works:

In the estimate of balance work, the quantity of installation of PVD was 47500 m where as the executed quantity was 130392.10m. The Geo-

technical expert after studying the senavior of the deep clayey strata underneath proposed to provide Pre-Pabricated Vertical drains along with Geo textiles. A deep study of the compete area of the embankment portions on each side of bridge proper could not done due to lack of facilities then. There were no research or lab facilities for designing this new advanced technology in the construction field at that time. Sub soil exploration at some points along the embankment portions only were not sufficient as they give only an approximate idea of the application of new technology.

Due to very loose and deep soft clay, with high water content, the average residual settlement in this portion is very high. In order to accelerate the primary settlement due to consolidation by dissipating the pore water pressure, the pre fabricated vertical drain (PVD) was adopted. The use of PVD's for ground improvements is a modern technique well accepted internationally and adopted recently in the Country. At the time of execution research studies were still going on towards the application and hence in the balance estimate preparations the provisions given for PVD were not exactly the quantity as required at the site conditions. It needs more study about the soil conditions considering all parameters at the site. The PVD's were installed together with pre loading by surcharge embankments creating drainage paths which are inserted in to soft clayey sub soil. Thus the pore water squeezed out during the consolidation of the clay due to hydraulic gradients created by preloading can flow faster in the horizontal directions towards the PVD's and then it flows along the PVD's vertically upwards. It consequently accelerates the consolidation process and allows the clay to main rapid strength. PVD is installed by using an installation rig by penetrating the mandrel which penetrates vertically in to compressible soils to the desired depth. After completion of

the PV Drain, the geotechnical frument consisting the settlement Juges and piezo meters were more ed. Settlement gauges used for measurement of settlement of the ground and piezo meters are used for the measurement of changes in pore pressure. By closely watching the settlement and its speed, modifications in the spacing of PVD were done. If the settlement rate is fast and if development of cracks noticed on top of embankments PVD's at closer intervals are provided. Similar situations arised during the execution of embankment close to abutment portions in Varamkadavu site where a sign of failure of the embankment noticed with cracks spread widely on top extending downwards. Hence after consultation with Geo-Technical expert installation of PVD at closer intervals were provided. This was considering the height of embankments and increased water content in embankment portions close to abutments. Also the depth of installation of PVD was increased depending upon the depth of soft clayey strata till a refusal strata (stiff soil) was reached. Hence the quantity of PVD provided originally in the estimate based on a rough design had to be modified as per the changes noticed in the behavior of the embankment during construction carefully noting the surface condition on top of formation, noting the readings in settlement gauges and piezo meters. So the quantity of items of ground improvements increased for the proper completion of embankment.

The construction of pre fabricated vertical drains needs, sophisticated machineries such as installation rig consisting a mandrel for driving the PVD, anchor plate, PVDs, geo textiles imported and also instruments such as the settlement gauges, piezo meters etc. All the items used in the constructions are highly sophisticated and not included in the PWD schedule of rates. Hence the items of PVD and geo textiles were treated as extra items and no tender variation was applied.

The rates towards the ground improvements works in the sanctioned estimate and agreement schedule was based on market rates. The entire item related to ground improvement works using PVD etc were executed by contractor collaborating with firm experienced in this filed having foreign technical expertise. Payments towards all items were done by this as per then prevailing market rates. Moreover, since there is change in specification of PVD from the original agreement specification, and change in the data rate which was purely based on market rate. Competent authority revised the items and approved revised rate and increase in quantity. Then supplementary agreement executed with the Contractor to this sanctioned extra item with revised quantity and revised rate which was based on market rate. This was also subsequently approved by Govt. vide letter No. 25592/D1/09/PWD dated 18/2/2010 and allowed sanctioned rate (Estimate Rate). Hence no Tender variations affected.

All decision right according to the circumstances were taken whenever warranted by all the concerned officers in charge of this work towards proper completion of the work and also to adhere to the direction of the Hon'ble High Court of Kerala. The work completed, formally inaugurated and open to public traffic in appropriate manner.

In view of the above facts the audit objection may be dropped.

R SREEKALA DEVI Speciel Serretary to Govt. Public Viorta Department Govt. Secretariat, Typna-Ph 2327175, 2518465

VERIFICATION REPORT

Sub: Committee on Public Accounts 2016-19 meeting on 30.05.2018

Ref: Para 5.8 of Audit Report on Economic Sector for the year ended March

2015- Report No. 4 of the year 2016

Audit has observed that Public Works Department had constructed fender piles along with construction of Thadikkakkadavu Bridge across Periyar River. The fender piles constructed at a cost of Rs. 3.12 crore were meant for protecting the Bridge against the impact of collusion by barges. The requirement for fender piles was not there since that particular stretch of waterway was considered not suitable for navigation. The Irrigation Department also did not have any plans for developing the stretch for navigable purposes. The Irrigation Department has also confirmed there was no navigable water way connecting the Nedumbassery Airport to Periyar River. The said Thadikkakkadavu Bridge was constructed in the northern arm of Periyar River by including fender piles to facilitate navigable purpose. The Irrigation Department has stated that the southern arm of Periyar is the shortest and economically feasible route for cargo movement from Nedumbassery Airport to Kochi Seaport. However, even this route was having bottlenecks due to insufficient clearance and requirement of widening of about 5 Kms length between Nedumbassery Airport and Chenkalthodu.

During Course of discussion of this observation, an official from the PWD had informed that Irrigation Department had constructed a locking system in Purapillykavu Bridge in the northern arm for navigation purpose. This gave an impression that the northern arm is also navigable and the fender piles constructed at Thadikkakkadavu Bridge is necessary and probably constructed with foresight. The Committee had requested Accountant General to verify this issue and give a report.

Accordingly, an audit team was deputed to verify the facts, it was found that the Purapillykavu Bridge was actually a regulator-Cum-bridge (RCB) with a navigation lock. The dimensions of navigation lock were 35-metres-long shutter to shutter and inner width of 10 metres suitable for vessels having lesser dimensions and up to 1.20-metres draft. This indicates that vessels which are having a length of less

than 33 metres width less than 9 metres and require draft of less than 1.20 metres alone only can pass through the Purapillykavu RCB. This also indicates that any bridges with a span of more than 10 metres either downstream or upstream would in no way facilitate navigation due to the bottleneck at Purapillykavu RCB. Incidentally during physical verification of the Purapillykavu RCB, the audit party witnessed the operation of RCB for allowing passage for a small boat pulling a barge of size of 12metres length and 6.5-metres width used for conveying construction activities (photos enclosed). The entire operation took more than half an hour for completion. The operation of the navigation lock is rare and done at the request of parties who are in need of such service. It was also seen that the depth level of RCB was restricted to plus 6.6-metres similar to that of the Manjali Bridge constructed by PWD 1.5 Km downstream of RCB. This part of river was not included in the National Waterways as decided in the meeting dated 11th June 2013 in the chamber of Minister of Water Resources (copy of minutes enclosed). Thus, it is apparent the horizontal as well as vertical clearance of Purapillykayu RCB was not suitable for passage of heavy or medium size vessels. Consequent to this verification, it is reaffirmed that construction of fender piles at a cost of Rs. 3.12 Crore at Thadikkakkadavu Bridge was unwarranted since the stretch was not suitable for navigation purpose in view of the bottlenecks. It is also apparent that the decision to construct the fender piles was a decision taken by the concerned Chief Engineer (Roads & Bridges) without the concurrence of Design, Research and Investigation, Quality Control wing (DRIQ) which had originally approved the design of Thadikkakkadavu Bridge.

Thus it is apparent the Purapillykavu RCB is suitable for movement of smaller vessels only. Hence the need for fender piles at Thadikkakkadavu Bridge which is having a span of more than three times that of Purapillykavu RCB was unwarranted resulting in wasteful expenditure of Rs. 3.12 Crore.

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भारतीय लेखा तथा लेखापरीक्षा विभाग

INDIAN AUDIT AND ACCOUNTS DEPARTMENT

प्रभान महालेखाकार (

केखापरीक्षा) का कार्यालय, केरल,

OFFICE OF THE PRINCIPAL ACCOUNTANT GENERAL

@COMOBILA REVENUESECTOR AUDITI,

KERALA BENNEN, जमका स्टाउन - 680000

No. ESII/DP Cell (Works)/1B 2834/2015-16/ 3Q

Date: 6.11.2015

To

Shri Harinarayanan NS,

Chief Engineer (Irrigation & Administration),

Irrigation Department, Government of Kerala,

Thiruvananthapuram

Sir.

Sub: Details of Periyar river-structures built across the river and route followed.

It has been reported by Public Works Department that there is a water transport route through the northern branch of Periyar, from Neduvanner via Purapillykavu and Kadmakkudy, and the said route was being actively considered for connecting Kochi port with Nedumbassery airport. In this connection, the following information relating to Periyar river may please be furnished:

- 1 The river Periyar splits into two branches, viz., Managalapuzha and Varappuzha, near Aluva manappuram. Please confirm whether structures like bridge at Thadikkakadavu and Regulator-cum-bridge at Purapillykavu, currently under construction, are located on the "Managlapuzha branch" in the 'northern arm' of Periyar.
- Whether there is any navigable waterway connecting the Nedumbassery airport to Periyar river. If yes, details of the same may be furnished. If not, please name the location nearest to the airport through which Periyar passes.
- 3. Whether there is any proposal to develop the "northern arm" of Periyar as a waterway connecting Nedumbassery airport to Kochi city/seaport for cargo transportation? If yes, please furnish the details:

- 4. Whether there are any drinking water projects in Periyar between the portion of river that passes nearest to the Nedumbassery airport and the point where the northern arm of the river connects with the Chalakkudy fiver
- 5. Which of the routes, i.e northern or southern arm of Periyar, is economically feasible for transporting cargo from Nedumbassery airport to Kochi city/seaport?
- 6. Details regarding the type of cargo vessels/boats/barges that can navigate through the 10 metres wide lock forming part of the Regulator-cum-bridge at Purapillykavu may be furnished. Expected volume of cargo movement through the lock may be stated.
- Whether there are any bottlenecks for large-scale cargo movement from Nedumbassery airport through the northern arm of Periyar to Kochi city/airport?

The information cited may please be furnished by 12.11.2015.

Yours faithfully

(N. Subramanian)

Deputy Accountant General (ES II)

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No. F4/36713/15.

Office of the Chief Engineer, Irrigation & Administration, Thirdvananthapuram, Dated: //.11.2015.

From

The Chief Engineer.

To

Sri. N. Subramanian,
Deputy Accountant General (ES II),
O/o the Accountant General,
Thrissur.

Sir,

Sub:- Details of Periyar River structures built across the river and route followed - Report submitting of - reg.

Ref:- Letter No. ESII/DP Cell (Works)/1 B 2834/2015-16/38 dated 06.11.2015 of the Deputy AG (ES II).

Your kind attention is invited to the reference cited and I m submit herewith the report as follows.

- Yes, the structures like bridges at Thadikkadavu and RCB at Purapp kavu currently under construction are located on the Mangalappus branch' in the northern arm of Periyar.
- 2. There is no navigable waterway connecting the Nedumbassery Airport
 Periyar River. Chenkalthodu near Kanjoor is the nearest location to
 airport through which Periyar passes.
- Presently there is no proposal has been taken upto develop the "north arm" of Periyar as a waterway connecting Nedumbasserry airport to Ko-City/Seaport for cargo transportation, from this office.

- Yes, Chowara Drinking Water Scheme (KWA) near Aluva is the existing nearest to the Nedumbassery Airport. More details may be obtained from Kerala Water Authority, Aluva.
- Southern arm of Periyar is the shortest and economically leasible for importing cargo from Nedumbassery Airport to Kochi City seaport.
- 6. Can'not specify the types of vessels that can pass through the lock of Purappillykavu Regulator Cum Bridge. But vessels having 29 mtr long and 9 mtr wide with 1.20 mtr draft can pass through the lock.
- 7. Yes. There are bottle necks due to insufficient clearance under the existing bridge across Periyar. Also approximately 5 km length between Nedumbassery Airport and Chengal Thodu require widening and deepening.

Yours faithfully,

N.S. Harinarayanan Chief Engineer (I&A).

BS/11.11

Report on the joint inspection of site of Regulator cum Bridge at Purappillikkavu across P river in Ernakulam district, conducted by PW Party-V, along with Sri.KK Syamkumar, Ass. Executive Engineer, Irrigation Investigation Sub-division Aluva on 05-06-2018.

The Audit team along with the departmental engineers reached the site at 11.00 am. The RCB was constructed with 22 spans including the navigation lock. The civil and mechanical works were seen completed and electrical work not carried out.

The AEE informed that the electrification work was arranged, agreement executed and work started. The operation of shutters was presently being carried out according to necessity by hiring generators on hourly basis through tender.

The AEE informed that the navigation lock was constructed with dimensions 35.00m long (shutter to shutter) and inner width of 10m and those vessels having lesser dimensions with 1.20m draft alone could be passed through the Lock.

It was also seen that the deck level of the RCB was restricted to +6.65m, similar to that of the Manjali bridge (constructed by PWD) 1.5 km downstream of the RCB since this part of the river was not included in National waterways, as decided in the meeting dated \$1-06-13 in chamber of Minister of Water Resources. Hence the horizontal as well as the vertical clearance of the Lock was not suitable for passage of heavy or medium sized cargo vessels.

Shutters of navigation lock are being lifted occasionally based on the request by the parties. But, by chance, the Party could witness the operation of the navigation lock for allowing passage for small boat pulling a barge of size 12m x 6.5m (approximately) and photos were taken.

K K Syamkumar,

Assistant Executive Engineer

Bismi Shafna U S Assistant Engineer

Natisiant Executive E

Joy Antu P, Asst Audit Officer

enior Audit Officer

C S Precy, Asst. Audit Officer

APPENDIX III Appendix From Audit Report -

Appendices

Statement showing the works executed during the period 2011-15 treating as ordinary repairs (Reference: paragraph 5.6; Page 182)

SL	Name of work	Division	Fotal claim	
No.			(7 in takh)	
1.	Renewal/IRQP from km 231/300 to km 263/444 of NH-17	Kozhikode	1251.14	
2.	Resurfacing NH-212 km 66/00 to km 76/00			
3.	Periodical renewal (PR) of NH-17 providing 50mm BM and 25mm BC km 194/610 to km 206/500	Kozhikode	1,042.86	
4.	Repairs to Railway overbridge at Vengali, Kozhikode Vengalam and Chengathukavu on NH-17		179.82	
5.	PR 2010-11, providing BM and BC in km 29/000 Kanour to km 41/000 of NH-17		664.56 464.05	
ь,	Resurfacing of NH-17 from km 58/000 to km 63/000	of NH-17 from km 58/000 to km Kannar		
7.	Improvements to Kondotty town km 27/500 to km 29/150 of NH-213	Malappuram	330,90	
8.	Widening of NH-213 between Angadipuram and Perinthalmanna	Mulappuram	336.46	
9.	Monsoon work NH-49 Madurai-Kochi road 40mm BC between km 279/000 to km 286/610	Muvettupuzha	349.99	
10.	NH-17 2013-14 providing 1.20 x 1.50 span slab culvert and drainage facilities (km 331/500 to km 331/750).	Malappuram	19,93	
11.	NH-212 - resurfacing work between km 97/600 to km 117/600 in Wayanad district	Kozhikode	580.53	
12.	NH-213 for 2013-14 extension of culvert drain (km 41/040 and km 40/700) and (km 42/800 and km 43/200)	Malappuram	4,62	
13.	NH-213 for 2013-14 extension of culvert drain at km 79/200 (left side)	Malappuram	4,98	
14.	NH-213 for 2013-14 extension of culvert at km 46/800	Malappuram	4.95	
15.	NH-47 Resurfacing work from Vadakkancherry to Vaniyampara (km 240/000 to km 249/000 and Vazhukumpara to Mamuthy)		1,526.00	
16.	Repairs to damaged drain in providing cover slabs between km 70/800 to km 70/900 (right side)	epairs to damaged drain in providing cover slabs Malappuram		
17.	Repairs to damaged drain in providing cover clabs between km 70/900 to km 71/000 (right side)	Malappuram	3.00	
-	Total		7,422.96	