GOVERNMENT OF MANIPUR
PUBLIC HEALTH ENGINEERING DEPARTMENT

No.: CE/PHE/3-94/NDB/2019/4052 Imphal, 4th February, 2020

MINUTES OF THE PRE-BID MEETING FOR MANIPUR WATER SUPPLY PROJECT UNDER NDB HELD ON 10-01-2020 IN THE OFFICE CHAMBER OF CHIEF ENGINEER, PHED, MANIPUR
(This is issued as per Sectt.-PHE letter No. 8/23/2019-PHE dated 4th Feb, 2020)

Ref: NIT No. CE/PHE/3-94/NDB(W)/P-II/2019/2741, dated: 26/12/2019

The pre-bid meeting chaired by Commissioner PHE along with Chief Engineer, PHED and assisted by Superintending Engineer, Urban Circle and Executive Engineer, WSM-II, PHED, Manipur was participated by the following firms (attendance sheet annexed) listed below for Manipur Water Supply Project IWS P-I(W), IWS-PII(W) & IWS-PIII(W): -

1. **Eco Protection Engineers Pvt. Ltd, Chennai-600101**
2. **WPIL Limited, Kolkata-700046**
3. **M/s East India Udhyog Ltd.**
4. **M/s Keystone Infra Pvt. Ltd, Hyderbad-500034**
5. **M/s SPML Infra Ltd, Kolkata-700016**

Also, following firms have submitted their queries through email: -

1. **Larsen and Toubro Limited, Chennai-600089**
2. **Vishnu Prakash R Punglia Ltd, Mumbai-400064**
3. **Saraswati Technical Services Pvt. Ltd, Jaipur-302015**
4. **Rean Watertech Pvt. Ltd, Kolkata-700156**
5. **Srinivas Infrastructure Pvt. Ltd, Hyderbad-16**

Key observations and clarification thereof; -

Sl. No.	Reference	Description as Per tender / IFB	Queries / Clarification of the bidder	Remarks of PHED
1.	Section No.	SECTION II Instructions to Bidders (ITB);	Request you to accept the Consortium/Joint bids for this tender. **Kindly consider.**	Clarified as:- No change in NIT
	Page No.	Page No. 5		
	Para No / Clause No.	**A4. Eligible Bidders ;** A 4.1 A Bidder may be a reputed firm / contractor, registered in Central/State Government / Semi Government works in appropriate class upto the date of issue of this procurement/NIT and from any of the member countries of NDB. **No Consortium/Joint bids shall be accepted.**		

2.	Section No.	SECTION III, Evaluation and Qualification Criteria;	The tender scope consists no Water Treatment Plant (WTP) in this package, however intake works only to be constructed. Hence, **intake works of equivalent capacity i.e, 11.44 MLD shall be considered to meet the prequalification criteria.** **Kindly confirm.**	Clarified as:- The project area covers by total installed capacity of 169.60 MLD. Hence, the PQ of having experience of 45 MLD or higher was fixed considering about 30% of the total capacity. Therefore, No change in NIT.
	Page No.	Page No. 11.		
	Para No / Clause No.	**<u>Sl. No.2:</u>** **The bidder should fulfil the following experience criteria:** i) Basic and detailed engineering including procurement, construction of **minimum one Conventional Water Treatment Plant with capacity of 45 MLD or higher in PHED or similar organization** in the member countries of NDB during the last 5 years (from FY2014-15 to FY2018-19)		
3.	Section No.	SECTION III, Evaluation and Qualification Criteria;	We request you to consider the experience of 70 KM in **aggregate quantity completed in 2 projects instead of single project.**	Clarified as:- No change in NIT as this criteria has been decided based on 30% of total length of pipeline laying required in each package.
	Page No.	Page No. 11.		
	Para No / Clause No.	iii) Providing, laying, jointing, testing & commissioning of ductile iron (DI) pipe of 100 mm diameter & above for a length of minimum 70 KM in a **single project** during the last 5 years (from FY2014-15 to FY2018-19)		
	Section No. III	Providing, laying, jointing, testing & commissioning of 100 mm diameter & above for a length of minimum 70 Km in a single project during the last 5 years (from 2014-15 to FY 2018-19)	Request to consider any type of pipe laying experience and only laying, jointing, testing and commissioning, as in most of the contracts, providing the required pipes is in the scope of the Employer like this contract. Due to length of pipe lines are more in water supply distribution projects, the laying works are to be executed with more manpower due to small dia pipe and is feasible to execute the laying works on sub-contract for	Clarified as:- Experience in laying, jointing, testing & commissioning independent of providing will also be considered.

			completion of works in time. Hence, we request to consider the Laying works experience executed as Sub-contractor also in Technical Criteria.	
4.	Appendix-9 Scope of work Page No 24 Item No 1	Laying of DI Distribution Pipes (K-7class)conforming toIS12288:2002 specifications including excavation, sand bedding, jointing, backfilling, transporting and necessary road restoration works including providing and laying of DI fittings(specials)/C I fittings(specials)mechanical type and suitable DI valves as per relevant IS Code and providing and fixing of Pre- paid Water Meters BIS/IS certified magnetic type class-B confirming to IS:779orIS:2373standardswithlatest amendments with two connectors (appropriate according to size)on both supply side and delivery(consumer)side (29532Nos) &Bulk meter(26 Nos)including all necessary materials, testing, design, drawing and construction of pipe crossing steel truss bridges across rivers, nallah, etc. and chambers for Air Valve, Scour Valve and Sluice Valve including testing of pipe joints, fittings, valves, and disinfection of all pipes, trial run and commissioning, etc. complete. (Necessary pipes shall be supplied by the dept. and Contractor will arrange the necessary items/ equipments/ water etc. required for hydraulic testing)	1. Providing and fixing of 29352 water meter and 26 Nos Bulk meters repeated again in Item No I & J. Please clarify. 2. Since the design of Rising main & Distribution Network are not in the scope of contractor, to estimate the quantity of valves, valve chambers and pipe crossing bridges etc for various sizes of pipes, scope of work or drawing are required. 3. Please confirm the Material of construction for Valve chamber (Brickwork or RCC). 4. Since, the cost of road restoration will vary for different sizes of pipelines (150mm to 600mm) and different types of road (Bituminous road, CC road, RCC road, Earthen road), Tentative lengths of different roads with respect to various pipe sizes are required for proper estimation. The same clarifications are sought for Item No 2 & 3.	Clarified as:- 1. Sl.No. 1 describes the general specifications/scope of work but particulars for rate quotation is to be made in Item No. I & J only. 2. For assessing the requirement of specials site visit has been arranged besides sharing of typical site plan. Also shared as Annexure-V 3. R.C.C chamber have to be provided. 4. Bituminous finish for the cut portion has to be maintained.
5.	Appendix-9	Distribution Network at WSZ-21 Porompat Zone 100mm dia. - 12053.00 m	Since the unit for the item is per job,	Clarified as 1.Mode of billing and payment will be as per

	Scope of work Page No 24 Item No 1 (A to H)	150mm dia. - 24708.00 m 200mm dia. - 8799.00 m 250mm dia. - 2082.00 m 300mm dia. - 1156.00 m 350mm dia. - 1118.00 m 400mm dia. - 820.00 m 450mm dia. - 1735.00 m 500mm dia. - 197.00 m 600mm dia. - 1364.00 m Total - 54032.00 m	1. What will be the mode of measurement for R.A Bills? 2. What will be the breakup for laying of Various sizes of pipes? 3. What will be the breakup for various works like laying, valve chambers, road restoration, DI fitting and valves etc. 4. If the quantities of pipes getting varying, how the deviation will be arrived?	Clause 6.1 of G.C.C of NIT and for query 2&3 as per the payment schedule finalized at the time of agreement signing (percentage wise) 4. As per NITs only scope of work will be taken-up and no additional work will be taken.
6.	Appendix-9 Scope of work Page No 24 Item No 1 (I)	Providing and fixing 15 mm dia. Pre-paidWater Meter BIS/IS certified magnetic type class-B confirming to IS:779 or IS:2373 standards with latest amendments with two connectors (appropriate according to size) on both supply side and delivery(consumer) side with necessary accessories including GI pipes of required length, excavation and re-filling, cutting, threading the pipe and testing etc complete. - 29532 Nos.	This item is meant for Providing house connection. To execute this item, Service saddles (optional), Brass ferrule, Stop cock, meter box (optional) etc., are required. Kindly clarify the scope of work. If the quantities are varying, how the deviation will be arrived?	Clarified as:- Pre-paid water meters (along with necessary accessories) have to be provided inside the boundary wall of the consumers. Quantities shown in NIT are fixed.
7.	Appendix-9 Scope of work Page No 24 Item No 4 (i)	Construction of Intake Works: (i) Design, Drawing, construction, Testing and Commissioning of Intake Works of 8.17 MLD, mechanical &electrical works including connecting walkway cum pipe carrying bridge from Intake well to river bund. Supply and installation of Vertical Turbine raw water pumps (Worthington/Mather Platt/Kirloskar make) with motors (2working and 1 standby) i/c manually operated travelling crane with girder for lifting the pumps for Irilbung (WTP) at Iril River.	For the realistic estimation the following inputs are required. 1. River flow data & Geo-technical investigation report of the site. 2. Length of approach bridge required. 3. Pump Capacity, head, length of transmission main, hours of operation are required.	Clarified as:- High Flood Level, River Bed Level & Normal Water Level data is shared as Annexure-II

8.	Appendix-9 Scope of work Page No 24 Item No 6 (ii)	Construction of Overhead Tank And Emergency Reservoir: (ii) Design, Drawing, Construction, Testing and Trial run of Overhead Tank-15 meter staging height of 0.80 ML capacity including suitable pile foundation with ancillary units etc. complete including RCC Clear Water Pumping Station at NepraMenjor, supplying & installation of Pump sets (Jyoti/Mather Platt/ Kirloskar make) capable of filling 0.80 ML in one and half hours with motors (two working & one standby)i/c manually operated travelling crane with girder for lifting the pumps with ancillary units, complete	Typical drawing of OHT may be provided. Geo-technical investigation report may be provided for proper estimation.	Clarified as:- Soil Bearing Capacity details is shared as Annexure-I
9.	Section-vi Page - 43, Clause 6 PAYMENTS TO THE CONTRACTOR	Mode of Billings and Payment as per the priority / Financial norms of the State Financial Department. The Employer shall cause the payment of the Contractor promptly after receive of the bill by the Employer on the basis of the measured works actually completed and verified by the Employer and the PM&SC on quarterly basis as per availability of Check Drawal Authority/Money as per the rules and regulations under government of Manipur. Payments shall be adjusted for deductions for advance payments (if any), retention, other recoveries in terms of contract & taxes to be deducted at source [TDS] as per applicable law.	For the better implementation of the project, Timely payment should be assured. And also, bill cycle shall be monthly. Percentage of Retention if any and details other recoveries shall be provided.	Clarified as:- Mode of billing and payment will be as per Clause 6.1 of G.C.C of NIT on quarterly basis. Performance guarantee bond(5% of accepted contract amount) will be retained for whole duration of project plus 6 months as per NIT clause H.1 of Section-III.
10.	IFB page 1	2 years after the date of issue of work order with O&M of 5 year after commission.	Considering the difficulties in & locality, we request you to increase the completion period for 3 years. In other states for this volume of project, 3 years are given.	Clarified as:- No change in completion period for works.

11.	Section 10 Page 10	Extension of Time and Compensation for Delay. Penalty for delay as per Clause 2 (i) of CPWD-FORM-8 will be imposed and incentive for early completion will be considered as per the decision of Government in later stage. The clause 2 (i) of CPWD-FORM-8 is as follows "Compensation for delay of work: @ 1.5 % per month of delay to be computed on per day basis. Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10 % of the tendered value of work or of the tendered value of the item or group of items of work for which a separate period of completion is originally given.	Considering the difficulties in the execution & locality, Compensation for delay of the work may be @ 0.5% per month and maximum may be kept as 5%.	Clarified as:- No change in quoted clause.
12.	Section-III Page-13	Performance Security Contractor shall be required to submit Bank Guarantee from any Scheduled Commercial Bank for an amount equal to 5% of the accepted contract cost towards Performance Security.	Performance BG may be relaxed to 2% to increase the cash flow.	Clarified as:- No relaxation.
13	Section No. IFB Page No. 2 Para No/ Clause No. 8	"If the office happens to be closed on the last date of submission of Bid Security & Tender Fee in hard copy as specified, the same will be received on the next working day at the Office mentioned above"	We understand that hardcopy submission for the original Bid security and Tender fee is only required. Kindly confirm.	Clarified as:- Hard copies of only Bid security and tender fees are required.
14	Section No. IFB & Section 1 Page No. 2 & 4 Para No/ Clause No. 8 & g	"The original copies of the Bid security and Tender Fee to be submitted in seal cover to the Office of the Chief Engineer, PHED, Government of Manipur on or before 14.00 hours of 07/02/2020" "Last Date & Time of uploading – 11:00 Hours of 10/02/2020"	As per the referred clause, the last day for online submission is 10.02.2020 till 11.00 hrs. We request you to allow the bidder to submit the original Bid security and tender fee by 11.02.2020 (i.e. next day of online submission) before 11.00 hrs. Kindly confirm.	Amended as:- "The original copies of the Bid security and Tender Fee to be submitted in seal cover to the Office of the Chief Engineer, PHED, Government of Manipur on or before 11.00 hours of 24/02/2020"

				"Last Date & Time of uploading – 11:00 Hours of 26/02/2020"
15	Section No. Section VI Page No. 43 Para No/ Clause No. 6.1	Payments shall be adjusted for deductions for advance payments (if any), retention, other recoveries in terms of contract & taxes to be deducted at source [TDS] as per applicable law.	We would like to bring to your kind notice that mobilization advance has been provided for various water supply projects that were envisaged across contracts in India. Hence, in order to facilitate better cash flow and smooth progress of project, we request you to provide us interest free mobilization advance of 10% of the contract value for the subject project. Kindly consider and confirm.	Clarified as:- No mobilization advances will be provided for this work.
16	Section No. ITB Page No. 7 Para No/ Clause No. A8 Page No. Para No/ Clause No. Page No. 10 Para No/ Clause No. E 1	The defect liability period in respect of the entire structure as a whole or in parts of individual components included in the contract shall be 6 months after successful completion of work in all respects and its testing & commissioning.	From the referred clause, we understand that defect liability period of 6 months is concurrent with 5 years of O&M which shall commences after construction duration of 24 months (inclusive of 3 months trial run). Kindly confirm.	Clarified as:- Defect liability period of 6 months is in concurrent with 5 years of O&M which shall commences after construction duration of 24 months (inclusive of 3 months trial run)
17	Section No. PWD Form - 12 Page No. 49 Para No/ Clause No. 22	".....the time allowed for any work exceeds one month, to complete one-fourth of the whole of the work before one-fourth of the whole time allowed under the contract has elapsed, one-half of the work, before one-half of such time has elapsed; and three-fourths of the work before three-fourths of such time has elapsed. In the event of the contractor(s) failing to comply with this condition he/they shall be liable to pay as compensation an amount equal	We presume that the liquidated damages / penalty levied for the slippage of one milestone will be reimbursed if the progress is covered up in the subsequent milestones and the project in completed within the contract duration. Kindly confirm.	Clarified as:- Any penalty levied under the quoted clause as compensation will not be reimbursed.

		to one percent, or such smaller amount as the Superintending Engineer…"		
18	Section No. II Page No. 5 Para No/ Clause No. A 3.1	No escalation will be allowed. The price quoted should be firm during the validity of contract period	Considering the voluminous nature of work with huge quantum of civil structures and also due to extreme volatility of prices of various materials, labors, machineries we request you to consider the price escalation for the contract period as being considered in contracts PAN India for projects for such duration.	Clarified as:- No escalation will be allowed
19	Section No. Section VI Page No. 43 Para No/ Clause No. 5.2	"Cost escalation, affecting the Applicable Law, with respect to taxes and duties and idle period which increases or decreases or due to delay of works in any case, the cost incurred by the Contractor in performing the works, occurred will not be accepted by the Employer, in any case."	We understand that the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor by all municipal, state or national government authorities and Employer will reimburse the same at the time of payment. Kindly confirm.	Clarified as:- The rates quoted as above are inclusive of labour cess, GST applicable, all taxes and duties complete. Hence, reimbursement does not arise.
20	Section No. Section IV Page No. 21 Para No/ Clause No. Appendix 6	"Construction Rate for key activities" is mentioned in the table	Kindly provide clarity for the Construction rate for key activities mentioned in the referred table.	Clarified as:- Means the unit rate at which the civil work has been executed.
21	Section No. Section IV Page No. 33 Para No/ Clause No. Note 3	"fine aggregate preferably from Kanhaighat/ Dhanshree Quarry"	We presume that the contractor is free to choose the place of purchase of basic materials.	Clarified as:- Quality shall conform to IS 456:2000, IS 4326:1976, IS 13920:2016, IS 383 and has to be approved by the department as per the standard procedure.
22	Section No. Section IV Page No. 33	"Design data & drawings (.dwg AutoCAD file) to be submitted in soft as well as hard copy(4 copies each set)."	We understand that the detailed design data & drawings shall be submitted during the construction phase and	Clarified as:- Detailed design and drawings shall be submitted in soft as well

	Para No/ Clause No. Note 6		tentative drawings shall be uploaded during online submission. Kindly confirm.	as hard copies before the construction phase.
23	Section No. III Page No. 13 Para No/ Clause No. H 1	"Performance Security The format of the Bank Guarantee(s) shall be got approved by the Contractor from the PHED, Manipur"	Kindly provide the Bank guarantee format for Performance Security.	Amended as:- The format of the Bank Guarantee is provided as Annexure- IV
24	Section No. VI Page No. 44 Para No/ Clause No. 9 (e) & 9 (c)	Requirement of tribal community land for implementing the works (permanent/temporary), including any land for construction camps and laydown areas during implementation, the Contractor will take prior permission from the respective village development councils, to avoid any conflict Contractor will be responsible for obtaining statutory approvals/permits related to E&S aspects including labor aspects. PHED will support the Contractor, if required, for obtaining the necessary approvals	We request the authority to provide the required width of ROW and land along with all permission, clearances and free from all encumbrances including permissions for NH, SH & Railway Crossings, payment of necessary charges, depository fees, and crop compensation to all the authorities, private land owners. Kindly confirm.	Clarified as:- Will be as per NITs clause 9(e), 9(c) of Section No. VI
25	Section No. Section VI Page No. 47 Para No/ Clause No. 14	Alteration in Specifications and Design	We understand that any alterations, omissions, additions or substitutions proposed by the Engineer in charge or authority shall be paid at actuals.	Clarified as:- Will be as per clause no. 14 of PWD Form-12 included in Section VI of NIT.
26	Section No. PWD Form – 12 Page No. 49 Para No/ Clause No. 21	"The Divisional Officer is to have full power to send workman upon the premises to execute fittings and other works not included in the contract for whose operations the contractor(s) is/are to afford every reasonable facility during ordinary working hours provided that such operations shall be carried on in such a	We understand that extra workmen deployed by the Authority for other works during contract period shall be the responsibility of the authority and any delay attributable shall not fall under the contractor.	Clarified as:- In such case, the department will manage in such a way no disturbance has been made to the contractors work**.**

		manner as not to impede the progress of the work…..”		
27	Section No. IFB Page No. 2 Para No/ Clause No. 8	Hardcopy submission of original bid security and tender fee	Kindly provide the address for hardcopy submission.	Clarified as:- O/o The Chief Engineer, PHED, Govt. of Manipur, Khuyathong, Imphal-795001
28	Section No. Section VI Page No. 43 & 52 Para No/ Clause No. 6.1 & 27	“The Employer shall cause the payment of the Contractor promptly after receive of the bill by the Employer on the basis of the measured works actually completed and verified by the Employer and the PM&SC on quarterly basis as per availability of Check Drawal Authority/Money as per the rules and regulations under government of Manipur.” “The contractor(s) shall be paid usually once a month commencing from the ……..a sum of ……. percent of the total value of work done since the last payment according to the certificate of the Divisional Officer.”	Referred clause states that payment shall be made on quarterly basis. While latter clause states that contractor shall be paid on monthly basis. Kindly clarify. Also, kindly specify the minimum interim payment and payment pattern for which contractor can raise bills.	Clarified as:- Payment to the contractor will be bound by Clause 6.1 of General Conditions of Contract included in Section-VI of NIT
29	Section No. Section VI Page No. 52 Para No/ Clause No. 27	“When the work shall be completed, the contractor(s) is/are to be entitled to receive all moneys due payable to him/them under or by virtue of the contract, except sum of ……. percent of the total value of the work done which will be retained for six months after the date of completion of the work and refunded to the contractor(s) only if no defect, shrinkage or other faults appear in the works.”	From the clause, we understand that retention money is applicable. Kindly provide the percentage and limit of retention. Also, in order to facilitate better cash flow for the project, we request you to consider upfront Bank Guarantee in lieu of cash retention. Kindly confirm.	Clarified as:- Performance guarantee bond(5% of contract amount) will be retained for whole duration of project plus 6 months and refunded to the contractor(s) only if no defect, shrinkage or other faults appear in the works as per NIT clause H.1 of Section-III.
30	Section No. Page No.	Removal & Shifting of existing Utilities	We understand that during execution of work, cost involved in removal & shifting of utilities will be the responsibility of	Clarified as:- Cost incurred in Removal & Shifting of existing Utilities will not be reimbursed but care

	Para No/ Clause No.		contractor and will be reimbursed at actuals by the department. Kindly confirm.	should be taken not to disturb other utilities in close co-ordination with other line departments.
31	Section No. Page No. Para No/ Clause No.	Damages during Utility Shifting	Since the project is located in core urban area, with thick population and it is likely that the utilities may be damaged without the knowledge of the contractor. We presume that any cost involved in rectifying the damages will be paid to the contractor at actuals. Kindly confirm.	Clarified as:- Cost incurred in Damages during Utility shifting will not be reimbursed but care should be taken not to disturb other utilities in close co-ordination with other line departments.
32	Section No. APPENDIX -9 Page No. 24 Para No/ Clause No. 1	Necessary pipes shall be supplied by the dept. and Contractor will arrange the necessary items/ equipment/ water etc. required for hydraulic testing	As the project doesn't encompass supply of pipes, we presume that any work related to pipe leakages, maintenance and any other issues which is not attributable by the contractor shall not fall under the contractor's obligation. Kindly confirm.	Clarified as:- Due care must be taken while joining the pipes otherwise contractor have to rectify the leakage from its own cost.
33	Section No. Page No. Para No/ Clause No.	General	From the referred clause, Serial 2-10 the unit is mentioned as 1 job but in the BOQ the same is mentioned as 1 Nos. Both are contradicting to each other. Kindly clarify.	Amended as:- Serial 2-10 the unit is mentioned as "1 Nos." in the BOQ will be read as" 1 Job"
34	Section No. Page No. Para No/ Clause No.	General	Kindly provide us the key plan and scheme drawing of the proposed water supply scheme for better understanding of the project.	Clarified as:- Site visit has been provided for such issues. Also, Typical site plan shared as Annexure-V**.**
35	Section No. Page No. Para No/ Clause No.	General	Kindly provide us the coordinates for the following structures: 1. Intake structure 2. Water treatment plant 3. Service reservoir 4. Overhead tank 5. Emergency reservoir	Clarified as:- Site Plan is shared as Annexure-V

36	Section No. Page No. Para No/ Clause No.	General	Kindly provide with the following details pertaining to proposed water supply scheme: 1. Villages/ habitations/ zones 2. Population 3. Water demand	Clarified as:- 1. 27 Zones 2. 6.5 Lakh (appx) 3. 135 lpcd
37	Section No. Page No. Para No/ Clause No.	General	Kindly provide base year, intermediate year and ultimate year for designing the water supply scheme.	Clarified as: - Base year- 2019 Intermediate year and ultimate year for designing the Water Supply Scheme as per norms of CPHEEO manuals on Water Supply and Treatment std.
38	Section No. Page No. Para No/ Clause No.	General	Kindly provide the typical general arrangement drawings of intake, reservoir and pump house at water treatment plant, service reservoir, overhead tank and emergency reservoir.	Clarified as:- Typical Site Plan is annexed as Annexure-V
39	Section No. IV Page No. 24 Para No/ Clause No. -	-	From the referred Price Bid in Appendix-9, we understand that no new WTP is proposed to be constructed under this project. Kindly confirm. Also, since construction of WTP is not in bidder's scope, we presume that the treated water from WTP shall be sufficient to cater the demand of the project area. Kindly confirm. Also, kindly provide the capacities and number of existing WTP to be utilized in this project.	Clarified as:- Package- I & III no new WTP is to be constructed but 1(one) new WTP to be constructed in P-II. Yes. Total of 19 WTPs in project area of total installed capacity of 169.60 MLD.

40	Section No. Page No. Para No/ Clause No.	General	Kindly provide us with the technical specifications for the following components: 1. Pumps (viz. Vertical Turbine Pumps, Horizontal Split case Pumps, Submersible Pumps etc.) 2. Valves (viz. Sluice Valve, Butterfly Valve, Air Valve, Pressure Control Valve etc.) 3. Pipeline (viz. Ductile Iron, Mild Steel etc.) 4. Surge Protection Devices (viz. Air Cushion Valves, Zero Velocity Valves, Surge Tanks, Surge Vessels etc.)	Clarified as:- Refer respective Sl.No of Schedule of Quantities for details in NIT Appendix-9 All pipe fittings and valves etc. shall be conforming to BIS or ISO standards.
41	Section No. IV Page No. 24	Laying of DI Distribution Pipes (K-7 class) conforming to IS 12288:2002 specifications including excavation, sand bedding, jointing, backfilling, transporting and necessary road restoration works including providing and laying of DI fittings (specials)/C I fittings(specials) mechanical type and suitable DI valves as per relevant IS Code and providing and fixing of Pre-paid Water Meters BIS/IS certified magnetic type class-B confirming to IS:779 or IS:2373 standards with latest amendments with two connectors (appropriate according to size) on both supply side and delivery(consumer) side (29532	From the referred item in the price bid, we understand that supply of distribution pipes is not in bidder's scope of work. Kindly confirm. However, we understand that if quantities and sizes of Water Meters and Bulk water meters indicated in Price Bid is final and if there is any change in quantities and size of these components during detailed engineering, the same shall be payable in actuals. Kindly confirm. Similarly, if the sizes and length of pipe changes,	Clarified as:- Supply of pipe is not in bidder's scope as explained in NIT, Appendix-9, foot note Sl.No. 1. Water meters and Bulk meters indicated in the scope of work shall only be taken up. Scope of work will be maintained.

	Para No/ Clause No. 1	Nos) & Bulk meter (26 Nos) including all necessary materials, testing, design, drawing and construction of pipe crossing steel truss bridges across rivers, nallah, etc. and chambers for Air Valve, Scour Valve and Sluice Valve including testing of pipe joints, fittings, valves, and disinfection of all pipes, trial run and commissioning, etc. complete. (Necessary pipes shall be supplied by the dept. and Contractor will arrange the necessary items/ equipment's/ water etc. required for hydraulic testing)	fittings for the same shall also change. We understand that the change in fitting quantity shall be payable as per actuals. Kindly confirm. Also, we understand that the battery limit of the project terminates at fixing of water meter outside the compound of consumers. Kindly confirm.	Pre-paid water meters (along with necessary accessories) have to be provided inside the boundary wall of the consumers and O&M for 5 years after that.
42	Section No. IV Page No. 24 Para No/ Clause No. 1	Laying of DI Distribution Pipes (K-7 class) conforming to IS 12288:2002 specifications including excavation, sand bedding, jointing, backfilling, transporting and necessary road restoration works including providing and laying of DI fittings (specials)/C I fittings(specials) mechanical type and suitable DI valves as per relevant IS Code and providing and fixing of Pre-paid Water Meters BIS/IS certified magnetic type class-B confirming to IS:779 or IS:2373 standards with latest amendments with two connectors (appropriate according to size) on both supply side and delivery(consumer) side (29532 Nos) & Bulk meter (26 Nos) including all necessary materials, testing, design, drawing and construction of pipe crossing steel truss bridges across rivers, nallah, etc. and chambers for Air Valve, Scour Valve and Sluice Valve including testing of pipe joints, fittings, valves, and disinfection of all pipes, trial run and commissioning, etc. complete.	In the referred clause, valve chambers are mentioned. For uniformity among the bidders, kindly provide typical General Arrangement drawings for the valve chambers viz. Sluice Valve Chamber, Scour Valve Chamber and Air Valve Chamber.	Clarified as: - R.C.C valve chambers as per BIS standards have to be provided whenever necessary.

		(Necessary pipes shall be supplied by the dept. and Contractor will arrange the necessary items/ equipment's/ water etc. required for hydraulic testing)		
43	Section No. IV Page No. 27 Para No/ Clause No. 2	Laying of DI Transmission Pipes (K-9 class) conforming to IS 12288:2002 specification including excavation, sand bedding, jointing, backfilling, transporting and necessary road restoration works including providing and laying of DI fittings(specials)/CI fitting(specials) mechanical type and suitable DI valves as per relevant IS Code and Design, drawing and construction of pipe crossing steel truss bridges across rivers, nallah, etc. and chambers for Air Valve, Scour Valve and Sluice Valve including testing of pipe joints, fittings, valves etc. and disinfection of all pipes, trial run and commissioning etc. complete. (Necessary pipes shall be supplied by the dept. and Contractor will arrange the necessary items/ equipment's/ water etc. required for hydraulic testing)	From the referred item in the price bid, we understand that supply of transmission pipes is not in bidder's scope of work. Kindly confirm. Similarly, if the sizes and length of pipe changes, fittings for the same shall also change. We understand that the change in fitting quantity shall be payable as per actuals. Kindly confirm. Also in the referred clause, valve chambers are mentioned. For uniformity among the bidders, kindly provide typical General Arrangement drawings for the valve chambers viz. Sluice Valve Chamber, Scour Valve Chamber and Air Valve Chamber.	Clarified as:- Supply of pipe is not in bidder's scope as explained in NIT, Appendix-9, foot note Sl.No. 1. Scope of work as per NIT will be maintained. R.C.C valve chambers as per BIS standards have to be provided whenever necessary.
44	Section No. Page No. Para No/ Clause No.	-	Kindly provide us the % losses to be considered in following components: 1. Raw Water Pumping Mains from Intake to WTP 2. Treatment Losses at WTP 3. Transmission Mains from WTP to Reservoirs 4. Distribution Mains	Clarified as:- As per CPHEEO manuals and benchmark on Water Supply and Treatment standards.

45	Section No. Page No. Para No/ Clause No.	-	Kindly provide us the hours of operation of the pumping machineries to be considered.	Clarified as:- 18-20 hrs/day
46	Section No. IV Page No. - Para No/ Clause No. –	-	Kindly provide us the staging heights of Service/ emergency Reservoirs.	Clarified as:- 15m staging height
47	Section No. Page No. Para No/ Clause No.	-	Kindly confirm that the electricity and diesel charges are in Client's scope during O&M period.	Clarified as:- All included in bidders scope of O&M.
48	Section No. Page No. Para No/ Clause No.	-	We understand from the BoQ that only supplying & Installing water meters is in the scope of the contractor whereas, water meter reading, billing and revenue collection is not in contractor's scope. Kindly confirm.	Clarified as:- Water meter reading, billing and revenue collection not in bidders scope
49	Section No. Page No. Para No/ Clause No.	-	Please let us know the frequency of payment during the O&M period.	Clarified as:- Quarterly as per NIT clause No. 6.1 of Section-VI of General Conditions of Contract.
50	Section No. Page No. Para No/ Clause No.	-	As the manpower for O&M is high in number and there is huge variation in the manpower wages for a 5 year O&M job, kindly consider the price adjustment clause for O&M period also.	Clarified as:- No escalation will be allowed as per NIT.
51	Section No. - APPENDIX -9 Page No. 32	Construction of dedicated power feeder: (I) Design, Drawing and Construction of dedicated power feeder including Power Supply, Outdoor Substation, Power Distribution, Indoor Lighting, Outdoor Lighting and Earthing materials and etc.	As referred from the clause, we understand that Bidders Electrical Scope of work starts from receiving 3Ph, 3W, 50Hz Incoming Power supply from Client / Electricity Board Substation through Overhead Transmission Line	Clarified as:- 1. In case of WTP-inlet power cables from the sub station upto the control panel of WTP and its subsequent connections to the various electrical/mechanical

	Para No/ Clause No. 9	Complete at Sangaiprou Complex. - 1.3 km.	(Dedicated Transmission Line) to Pump House Premises and further distribution up to tail end. Kindly confirm. Kindly provide the Incoming Voltage level in each Pump House for our consideration and understanding.	components fitted to the WTP i/c proper lighting system of the WTP. 2. In case of Intakes-inlet power cables from the sub station upto the control panel of intake and its subsequent connections to the pump/motor i/c lighting system. (a)AC 50 cycles, single phase, 230 V upto 5 kW of connected load. (b) AC 50 cycles, three phases, 400 V above 5 kW and upto 50 kW of connected load.
52	Section No. Page No. Para No/ Clause No.	Electrical Scope of work, Battery Limit, Technical Specification and BOQ for Proposed Scheme.	As per Tender Document, Scope of Works, Battery Limit, Detailed Technical Speciation and Detailed BOQ for Electrical Works are not provided. Kindly provide the above details for understanding the Electrical System and Power distribution for the proposed scheme.	Clarified as:- 1. In case of WTP-inlet power cables from the sub station upto the control panel of WTP and its subsequent connections to the various electrical/mechanical components fitted to the WTP i/c proper lighting system of the WTP. 2. In case of Intakes-inlet power cables from the sub station upto the control panel of intake and its subsequent connections to the pump/motor i/c lighting system.
53	Section No. Page No. Para No/ Clause No.	Single Line Diagram (SLD)	Kindly provide the Single Line Diagram for better understanding of the system.	Clarified as:- Explained as above Sl.No52
54	Section No. Tender document APPENDIX -9	Providing and fixing 15 mm dia. Pre-paid Water Meter BIS/IS certified magnetic type class-B confirming to IS:779 or IS:2373 standards with latest amendments with two	As per the referred clause, magnetic type class-B water meter to be provided. Kindly provide the detailed technical specification and clarify the	Clarified as:- Pre-paid Domestic Water Meter of Magnetic type class-B confirming to IS:779(domestic) standards with latest

	Page No. 26/66 Para No/ Clause No. Sl. No. I	connectors (appropriate according to size) on both supply side and delivery(consumer) side with necessary accessories including GI pipes of required length, excavation and re-filling, cutting, threading the pipe and testing etc complete. - 29532 Nos	type of water meters (AMR or AMR ready) to be considered.	amendments with two connectors (appropriate according to size) on both supply side and delivery(consumer) side with necessary accessories from any reliable make.
55	Section No. Tender document APPENDIX -9 Page No. 26/66 Para No/ Clause No. Sl. No. J	Providing and fixing enclosed type bulk water meters with necessary materials including construction of chambers and making connection with main etc. all complete. 100mm dia. - 19 nos. 150mm dia. - 6 nos. 200mm dia. - 1 nos.	As per the referred clause, enclosed type bulk meter to be provided. Kindly provide the detailed technical specification and application of these water meters with approved make for our necessary consideration.	Clarified as:- Bulk Water Meter of Magnetic type confirming to IS:2373(bulk) standards with latest amendments with two connectors (appropriate according to size) on both supply side and delivery(consumer) side with necessary accessories
56	Section No. Tender document Page No. Para No/ Clause No.	-	As per the tender document, we presume that the scope of Instrumentation and Automation is only limited to providing water meters as per the BOQ and there is no scope of Control and Automation under the scope of this tender. Kindly clarify and confirm the same.	Clarified as:- No Supervisory control and data acquisition (SCADA) system is included.
57	Section No. Page No. Para No/ Clause No.	-	We presume that all the liquid retaining structures shall be designed as limit state method with limiting crack width of 0.2mm as per latest IS 3370.	Clarified as:- All water retaining structures shall be as per IS 3370 and CPHEEO manuals standards.
58	Section No. Page No. Para No/ Clause No.	-	As the availability of Natural Sand is becoming scarce, we request you to allow the bidders to use manufactured / crushed sand, which complies with the design criteria and satisfies the codal provision. Kindly confirm.	Clarified as:- Manufactured/ crushed sand will not be allowed

59	Section No. Page No. Para No/ Clause No.	-	We request you to provide specifications for construction of Intake, WTP, Service Reservoir, Overhead tank & Emergency Reservoir.	Clarified as:- As per NIT Appendix-9 Schedule of Items for Intake, WTP, Service Reservoir, Overhead tank & Emergency Reservoir. Also, River profile attached as Annexure-II
60	Section No. Page No. Para No/ Clause No.	-	Kindly provide the bathymetry survey at Intake location and contour survey at WTP location if the same is available with Client.	Clarified as:- Typical site Plan is shared as Annexure-V Also, River profile attached as Annexure-II
61	Section No. Appendix 9 Page No. 24 Para No/ Clause No. 1 - 3	Design, drawing and construction of pipe crossing steel truss bridges across rivers, nallah, etc. and chambers for Air Valve, Scour Valve and Sluice Valve including testing of pipe joints, fittings, valves, and disinfection of all pipes, trial run and commissioning, etc. complete.	From the referred clause, we request you to provide the length, width and number of pipe crossing steel truss bridges across rivers, nallah.	Clarified as:- Shared as Annexure-III
62	Section No. Page No. Para No/ Clause No.	-	We presume that any extra items executed by the contractor shall be paid at actual market rates prevailing at the time of execution. Kindly confirm	Clarified as:- Bidders shall execute on works within the NITs scope of work.
63	Section No. Appendix 9 Page No. 24 Para No/ Clause No. 1 - 3	Laying of DI Distribution Pipes (K-7 class) conforming to IS 12288:2002 specifications including excavation, sand bedding, jointing, backfilling, transporting …..	We understand that the requirement of sand bedding is only for areas of rocky strata. Kindly confirm.	Clarified as:- Sand bedding shall be provided for whole lengths of pipe.
64	Section No. PWD Form 12 Page No. 49	"….during the execution of the work, the contractor(s) shall be bound, in all case in which the time allowed for any work exceeds one month, to complete one-fourth of the whole of the work before one-fourth of the whole time allowed under the contract has	From the referred clause, we understand that the milestone LD levied for the cases mentioned in the referred clause will be calculated on the value of unfinished works **i.e. 1% per month of value of**	Clarified as:- Compensation levied will be calculated on the value of contract i.e 1% of contract amount.

	Para No/ Clause No. 22	elapsed, one-half of the work, before one-half of such time has elapsed; and three-fourths of the work before three-fourths of such time has elapsed. In the event of the contractor(s) failing to comply with this condition he/they shall be liable to pay as compensation an amount equal to one percent, or such smaller amount as the Superintending Engineer…"	**unfinished works**. Kindly confirm.	
65	Section No. Section VI Page No. 43 Para No/ Clause No. 6	Payments to the contractor	We request you to provide the period of certification and period of payment of RA bills as the same is not mentioned in the tender document. Also we request you to provide the same for the release of final bill.	Clarified as:- As per NIT Clause 6.1 of Section-VI General Conditions of Contract payment will be made on quarterly basis.
66	Section No. Section VI Page No. 24 Para No/ Clause No. 1	Laying of DI Distribution Pipes (K-7 class) conforming to IS 12288:2002 specifications including excavation, sand bedding, jointing, backfilling, transporting and necessary road restoration works including providing and laying of DI fittings (specials)/CI fittings (specials) mechanical type and suitable DI valves as per relevant IS Code and providing and fixing of **Pre-paid Water Meter BIS/IS certified magnetic type class-B confirming to IS:779 or IS:2373 standards with latest amendments with two connectors**….	As per the referred clause, the scope of the contract includes providing and fixing of pre-paid water meters. In this connection, we request you to provide the mechanism involved for the same for the bidders to assess.	Clarified as:- Pre-paid water meters (along with necessary accessories) have to be provided inside the boundary wall of the consumers.
67	Section No. Appendix 9 Page No. 32 Para No/ Clause No. 7	Construction of Laboratory Building	We request you to provide the dimension and area for the laboratory building	Clarified as:- As per NIT Appendix-9, Schedule of Items of Construction of Laboratory Building Design, Drawing and Construction of Single Storey RCC Laboratory Building with tile flooring, anodized Aluminium Windows and Ventilators

				including Laboratory Equipment, Glass Wares, Reagents, Chemicals, Incubator etc. and other miscellaneous items as required for the analysis of Water Quality as per CPHEEO manual on water supply and treatment /WHO and conforming to NABL recommended standard at Canchipur having plinth area of 150 sqm.
68	Section No. Page No. Para No/ Clause No.	-	Kindly provide the detention time to be considered for treated water reservoir at Water Treatment Plant.	Clarified as:- Schedule of Item, foot note Sl. No. 4 of Appendix-9 in NIT "Liquid Retaining Structures should conform to IS 3370:2(2009), CPHEEO manual on Water Supply and Treatment"
69	Section No. -BOQ Page No. - Para No/ Clause No.-S. No. 5	"Design, Drawing, Construction, Commissioning and trial run of different units of Water Treatment Plant 5.45 MLD (i/c 20% overloading) MLD capacity at Ningthempukhri as per specification mentioned in the Schedule and as per items".	As per the referred clause, we presume that WTP process units shall be designed for required capacity (5.45MLD) without overload and WTP channels & interconnecting pipes with overload of 20%. Kindly confirm if our understanding is correct. Also confirm the WTP output capacity and treatment losses to be considered to design the WTP.	Clarified as:- 20% Overloading must be considered for WTP as a whole. Also, WTP shall output capacity of 5.45 MLD and treatment losses to be considered while designing the WTP.
70	Section No. -BOQ Page No. - Para No/ Clause No.-S. No. 5.01	"Designing, Drawing, Providing and Constructing in-situ R.C.C. Aeration."	As per the referred clause, We presume that bidder is free to choose WTP units level as per bidder's design.	Clarified as:- The minimum depth of filter outlet pipe to the Emergency /Ground reservoir shall not be more than 1 meter below GL fixed by the Department at site.

71	Section No. - General Page No. - Para No/ Clause No. -	-	Kindly confirm the operating hours to be considered to design the WTP.	Clarified as:- 18-20 hrs/day
72	Section No. -BOQ Page No. - Para No/ Clause No.-S. No. 5.08	"Designing, Drawing, Providing and Constructing R.C.C. Sludge and Waste Water disposal system (sludge and waste water pond) including recirculation of waste water by providing Recirculation Pump of required size including laying of various diameters NP3 type R.C.C. pipes for conveyance of sludge and waste water from Flash Mixer, Clarifier, Filter and Clear water Reservoir (over flow) including all Civil, Mechanical, Electrical works complete."	As per the referred clause, we understand that, Dirty backwash water from filter backwash tank shall be recycled to WTP inlet and sludge from clarifier shall be collected in sludge sump (i.e. sludge pond) which will be further discharged to nearby drain without any specific treatment. Kindly confirm if our understanding is correct. Also confirm the distance of sludge disposal drain from WTP campus.	Clarified as:- Dirty backwash water from filter backwash tank shall be collected first at sludge sump then recycled to WTP inlet and sludge from clarifier shall be collected in sludge sump (i.e. sludge pond) which will be further discharged within the WTP complex without treatment.
73	Section No. - General Page No. - Para No/ Clause No. -	-	We presume that WTP shall be manually operated with manual valves/ Sluice gate. Kindly confirm.	Clarified as:- SCADA ready valves and sluice gates shall be provided.
74	Section No. - General Page No. - Para No/ Clause No. -	-	Kindly confirm, whether filter beds shall be covered or open to sky.	Clarified as:- Filter bed shall be designed as R.C.C covered structure.
75	Section No. - General Page No. - Para No/ Clause No. -	-	Kindly provide the detailed raw water quality analysis report to design the WTP.	Clarified as:- Water testing report is provided as Annexure-VI
76	Section No. - General Page No. - Para No/ Clause No. -	-	Kindly provide the WTP Plot contour diagram in CAD format to design the WTP.	Clarified as:- Typical site plan is provided as Annexure-VI

77	Section No. - General Page No. -	-	Kindly confirm the number of days to be considered to design the chlorine cylinder storage area.	Clarified as:- 3 months
78	Section No. Section I Page No. 4 Para No/ Clause No. 1 (l)	Last Date & Time for receipt of original copies of the BID SECURITY (EMD) and Tender Fee - 14.00 hours of 27/01/2020 Time & Date of opening of TECHNICAL BIDs- 14.00 hours of 31/01/2020	In manipurtenders.gov.in portal, bid due date and opening of Technical bid is mentioned as on 10.02.2020. We understand that 31/01/2020 in tender document is typographical error. Kindly confirm.	Amended as:- Section-I, Clause No1(l)"Time & Date of opening of TECHNICAL BIDs-14.00 hours of 31/01/2020" shall be read as "Time & Date of opening of TECHNICAL BIDs-14.00 hours of 26/02/2020"
80		ii) Basic and detailed engineering including procurement and Construction of Water Supply Infrastructure for at least past 5 years (FY2014-15 to FY2018-19) in the member countries of NDB.	We are executing 2 Nos of Municipal Water supply projects at MP for MP Jal Nigam ,one project is 90% completed and other is 75% completed.Please confirm whether we can qualify with the same.	Clarified as:- As per NIT.
81	E 1.	Penalty for delay as per Clause 2 (i) of CPWD-FORM-8 will be imposed and incentive for early completion will be considered as per the decision of Government in later stage. The clause 2 (i) of CPWD-FORM-8 is as follows "Compensation for delay of work: @ 1.5 % per month of delay to be computed on per day basis. Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10 % of the tendered value of work or of the tendered value of the item or group of items of work for which a separate period of completion is originally given. The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Employer.	In view of magnitude of project, LD @ 1.5 % per month of delay to be computed on per day basis is huge. Request to lower the same to at least @ 0.05 % per month of delay to be computed on per day basis	Clarified as:- Penalty for delay will be as per NITs Section-II (ITB) Clause E.1 "Penalty for delay…."
82	Section No. II	No escalation will be allowed. The price quoted should be	Request to provide the Escalation Clause for	Clarified as:-

	Page No.5 Para No. / Clause No. A3.1	firm during the validity of contract period.	Labour, Cement, Steel, Material, POL during construction and maintenance period as the work completion period is specified for 2 years and Maintenance specified for 5 years to avoid the quoting of Speculative Tender.	No escalation clause will be allowed.
83	Section No. II Page No.8 Para No. / Clause No. 2.2	All duties, taxes, labour cess and other levies payable by the contractor under the Contract, or for any other cause as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Prices submitted by the Bidder.	We agree that, the Bidder will consider all duties, taxes, labour cess and other levies payable by the contractor under the Contract as on the date 28 days prior to Tender. The Statutory variations beyond the considered 28 days are to be reimbursed to the Bidder. Please clarify as the GCC clause 5.2 on page 43 is not clear.	Clarified as:- The rates quoted are inclusive of labour cess, GST applicable, all taxes and duties complete and for any other cause as of the date 28 days only prior to the deadline for submission of bids.
84	Section No. VI Page No.43 Para No. / Clause No. 5.2	Cost Escalation affecting the Applicable Law, with respect to taxes and duties and idle period which increases or decreases or due to delay of works in any case, the cost incurred by the Contractor in performing the works occurred will not be accepted by the Employer in any case.	The clause may be amended for idle period which increases or decreases or due to delay of works in any case **if the delay is attributable to the Contractor.**	Clarified as:- No change in NIT.
85	Section No. III Page No.11 Para No. / Clause No. A1 Sl.No. 3 in Table	Average Construction Turnover : The Bidder ….. …… showing a minimum average turnover of not less than Rs.70.00 Crore from execution of water supply and other Civil Engineering works	Whereas, in Appendix – 4 it was mentioned that Certified that, the Turnover of M/s. _____ from execution of **<u>water supply works</u>** during previous three (03) financial years is as below. It was not mentioned Other Civil Engineering works. **Request to include the words of Other Civil Engineering works.**	Amended as:- In NIT Appendix-4 "Average Turnover Certificate For Last 3 Financial Years" the line " execution of water supply works during the previous three (03) financial years" will be read as "execution of Water supply and other Civil Engineering Works during the previous three (03) financial years"
86	Section No. IV	As on date, we are not disallowed / debarred /		Amended as:-

	Page No.22 Para No. / Clause No. Appendix – 7 – 2nd Para	delisted / blacklisted for participation in any **D.I. pipe supply tender** by any Govt.....	The words of **D.I. pipe supply tender may be changed.**	In NIT, Appendix-7 the line " participation in any D.I. pipe supply tender" shall be read as " participation in any tender".
87	Section No. IV Page No.24 Para No. / Clause No. Appendix – 9 – Table 2nd Para	Scope of the Work:- The nature of work will include Design, Drawing, Construction, Commissioning, Testing and Trial Run (3 months before commission)	We presume that the Trial Run 3 months before commissioning is after the period of completion. **Please clarify.**	Clarified as:- Completion date is inclusive of Trial Run

General Clarification: -

1. If a single bidder applies in all the three packages, the qualification requirement will be sum total of average annual turnover required in individual tenders taken together. Similar formula will apply in case single bidder bids for two packages. Accordingly, only the number of packages in sequence corresponding to the total turnover calculated as above will be consider and the remaining package(s) will not be considered both for technical & financial bid.

Chief Engineer
PHED, Govt. of Manipur

ANNEXURE-I

SUB-SOIL INVESTIGATION AT SANGAIPROU, IMPHAL

Method of boring = Wash boring

GWL = 0.30m below boring level

Elevation-R.L. in m	Depth in m from ref.level	Depth of samplig in m	Type of sampling	SPT,per 30 blows N-value: Observed N-Value SIT cm	15 cm	15 cm	N	Corrected-N Value	Graphical representation of N-value	Stratification
1	2	3	4	5				6	7	8
	0.00								0 25 50	0.00m - 1.50m
	0.50									Very soft, gray silty clay layer, trace of sand
	1.00									
	1.50	1.50	D	1	2	2	4	4		1.50m - 4.00m
	2.00									Medium stiff, dark gray silty clay layer with fine sand
	2.50									
	3.00	3.00	D	2	2	4	6	6		
	3.50									
	4.00									4.00m - 6.00m
	4.50	4.50	D	1	0	2	2	2		Soft gray clay layer, trace of silt
	5.00									
	5.50									
	6.00	6.00	D	1	1	2	3	3		6.00m - 7.50m
	6.50									Soft, black and brown Organic soil layer,
	7.00									
	7.50	7.50	D	2	1	2	3	3		7.50m - 9.00m
	8.00									Soft dark gray clay layer, trace of silt
	8.50									
	9.00	9.00	D	2	2	3	5	5		9.00m - 12.00m
	9.50									Medium stiff blackish clay layer, trace of silt
	10.00									
	10.50	10.50	D	2	2	3	5	5		
	11.00									
	11.50									11.50m - 15.00m
	12.00	12.00	D	2	1	2	3	3		Soft to Medium stiff dark gray clay layer, trace of silt
	12.50									
	13.00									
	13.50	13.50	D	2	2	2	4	4		
	14.00									
	14.50									
	15.00	15.00	D	1	2	2	4	4		

SUB-SOIL INVESTIGATIONAT MINUTHONG, IMPHAL

Method of boring = Wash boring

GWL = 0.40m below boring level

Elevation-R.L. in m	Depth in m from ref.level	Depth of samplig in m	Type of sampling	SPT,per 30 blows N-value: Observed N-Value SIT cm	15 cm	15 cm	N	Corrected-N Value	Graphical representation of N-value	Stratification
1	2	3	4	5				6	7	8
	0.00								0 25 50	0.00m - 0.50m
	0.50									Very soft, dark gray silty clay layer
	1.00									0.50m - 3.00m
	1.50	1.50	D	1	2	2	4	4		Soft to Medium stiff dark gray yellowish tinge clay layer, trace of silt
	2.00									
	2.50									
	3.00	3.00	D	1	3	2	5	5		3.00m - 6.00m
	3.50									Medium stiff, dark gray clay layer, trace of silt
	4.00									
	4.50	4.50	D	1	2	2	4	4		
	5.00									
	5.50									
	6.00	6.00	D	1	1	1	2	2		6.00m - 7.50m
	6.50									Soft blackish Organic clay layer
	7.00									
	7.50	7.50	D	1	2	2	4	4		7.50m - 8.50m
	8.00									Medium stiff gray clay layer, trace
	8.50									8.50m - 9.70m
	9.00	9.00	D	2	3	3	6	6		Medium stiff blackish gray clay layer, trace of silt
	9.50									
	10.00									9.70m - 15.00m
	10.50	10.50	D	2	2	2	4	4		Medium stiff dark gray clay layer, trace of silt
	11.00									
	11.50									
	12.00	12.00	D	1	2	2	4	4		
	12.50									
	13.00									
	13.50	13.50	D	2	2	2	4	4		
	14.00									
	14.50									
	15.00	15.00	D	1	2	2	4	4		

SUB-SOIL INVESTIGATION AT KHUMAN LAMPAK, IMPHAL

Method of boring = Wash boring

GWL = 0.50m below boring level

Elevation-R.L. in m	Depth in m from ref.level	Depth of samplig in m	Type of sampling	SPT,per 30 blows N-value: Observed N-Value SIT cm	15 cm	15 cm	N	Corrected-N Value	Graphical representation of N-value	Stratification
1	2	3	4	5				6	7	8
	0.00								0 25 50	0.00m - 1.50m
	0.50									Very soft, dark gray silty clay layer, with gravel
	1.00									
	1.50	1.50	D	1	0	1	1	1		1.50m - 3.50m
	2.00									Very Soft, gray silty clay layer
	2.50									
	3.00	3.00	D	1	0	0	0	0		
	3.50									3.50m - 6.50m
	4.00									Soft, dark gray silty clay layer
	4.50	4.50	D	1	1	2	3	3		
	5.00									
	5.50									
	6.00									
	6.50	6.50	D	1	1	1	2	2		6.50m - 7.50m
	7.00									Soft blackish Organic clay layer,
	7.50	7.50	D	1	2	2	4	4		7.50m - 10.00m
	8.00									Medium stiff dark gray clay layer, trace of silt
	8.50									
	9.00	9.00	D	2	2	2	4	4		
	9.50									
	10.00									9.00m - 12.00m
	10.50	10.50	D	2	2	3	5	5		Medium stiff blackish clay layer, trace of silt
	11.00									
	11.50									
	12.00	12.00	D	1	2	2	4	4		12.00m - 15.00m
	12.50									Medium stiff dark gray clay layer, trace of silt
	13.00									
	13.50	13.50	D	2	2	2	4	4		
	14.00									
	14.50									
	15.00	15.00	D	1	2	3	5	5		

ANNEXURE-II

DETAILS OF RIVER PROFILE AT DIFFERENT RIVERS

Name of Rivers	High Flood Level (in meter)	River Bed Level (in meter)	Normal water level (in meter)
Imphal River	786.44	777.00	778.25
Iril River	790.40	777.40	778.60
Confluence point of Imphal &Iril Rivers	783.70	770.67	771.92

ANNEXURE-III

RIVER CROSSINGS

Name of Package	Estimated Cost of Package	Number of River crossings	Total length
NIT No. CE/PHE/3-94/NDB(W)/P-I/2019/2740 dt. 26/12/2019	**Rs. 234.59 Crore**	**9 Nos**	**339.00 m**
NIT No. CE/PHE/3-94/NDB(W)/P-II/2019/2741 dt. 26/12/2019	**Rs. 220.44 Crore**	**1 Nos**	**50.00 m**
NIT No. CE/PHE/3-94/NDB(W)/P-III/2019/2742 dt. 26/12/2019	**Rs. 260.95 Crore**	**19 Nos**	**825.00 m**

ANNEXURE-IV

Format for Submitting Bank Guarantee as Earnest Money

(For Works)

TENDER NO. Date: ……

(To be submitted in Rs. 50/- Non-Judicial Stamp Paper to be purchased in the name of the issuing bank)

To,

The Executive Engineer,
Water Supply Maintenance-II,
PHED, Manipur
Imphal-795001

WHEREAS ……..... (Agency's name) (Thereinafter referred to as "Agency"), a Corporation/ Company/ Firm having its registered office at …….. is required to deposit with you,by way of Earnest Money, Rs…….. (EMD amount) in connection with its tender for the work with reference to Notice Inviting Bid (TENDER NO…….. dated ……) as per specification and terms and conditions enclosed therein. WHEREAS the Agency as per "Tender Notice, Sl no. 6 (page 1) BID SECURITY (Earnest Money)" has agreed to establish a Bank Guarantee in Your favour through us valid up to …….. (Date)

We …….. (Bank) hereby agree and undertake to pay you on demand the said amount of Rs……. (EMD amount) without any protest or demur in the event the Agency/Tenderer after submission of his tender, resiles from or withdraws his offer or modifies the terms and conditions thereof in a manner not acceptable to you or expresses his unwillingness to accept the work order and/ or fails to sign the contract within stipulated period for the work under "Notice Inviting Bid (TENDER NO……..dated ……..).

1. Your decision as to whether the Agency/Tenderer has resiled from or has withdrawn his offer or has modified the terms and conditions thereof in a manner not acceptable to you or has expressed his unwillingness to accept the order and/or Letter of Intent issued by you on the Agency/Tenderer for the work Notice Inviting Bid (TENDER NO…… dated ……..) in this regard, shall be final and binding on us and we shall not be entitled to question the same.

2. Notwithstanding anything contained in the foregoing, our liability under this Guarantee shall be restricted Rs……. (EMD amount).

3. This Guarantee shall remain valid (validity for a period of 135 days after the deadline date for bid submission) and in full force and effect up to …….. (Date) and shall expire thereafter unless an intimation is given to the Bank by you earlier in writing discharging us from our obligation under this Guarantee.

4. We shall not revoke this Guarantee during its currency except by your consent in writing.

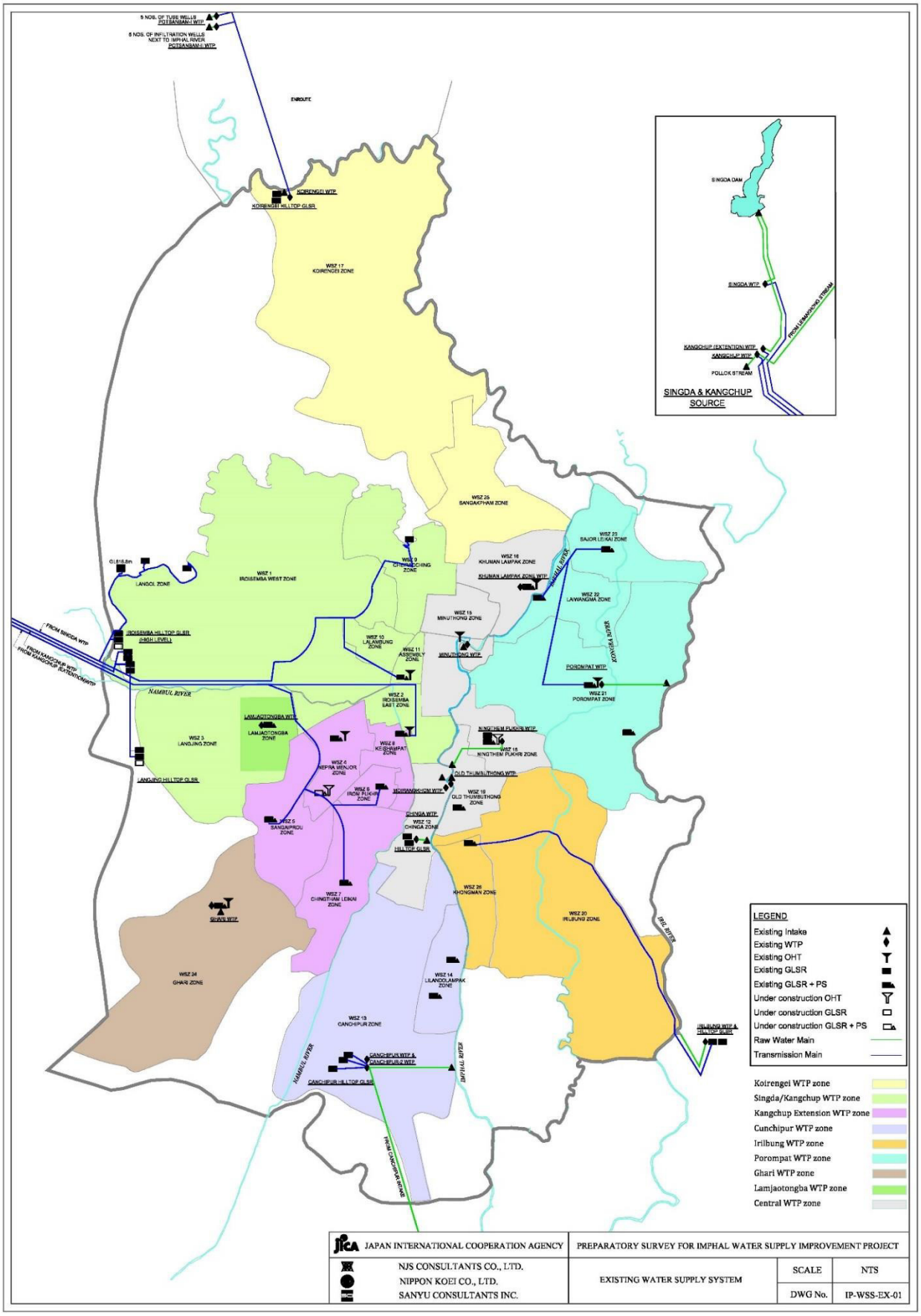
5. This Guarantee shall not be affected by any change in the constitution of the Agency/Tenderer or yourselves or ourselves but shall ensure to your benefit and be enforceable against our legal successors or assignees by you or your legal successors.

6. Notwithstanding anything contained herein above unless a demand or claim under this Guarantee is made on us in writing within six months from the date of expiry of this Guarantee we shall be discharged from all liabilities under this Guarantee thereafter.

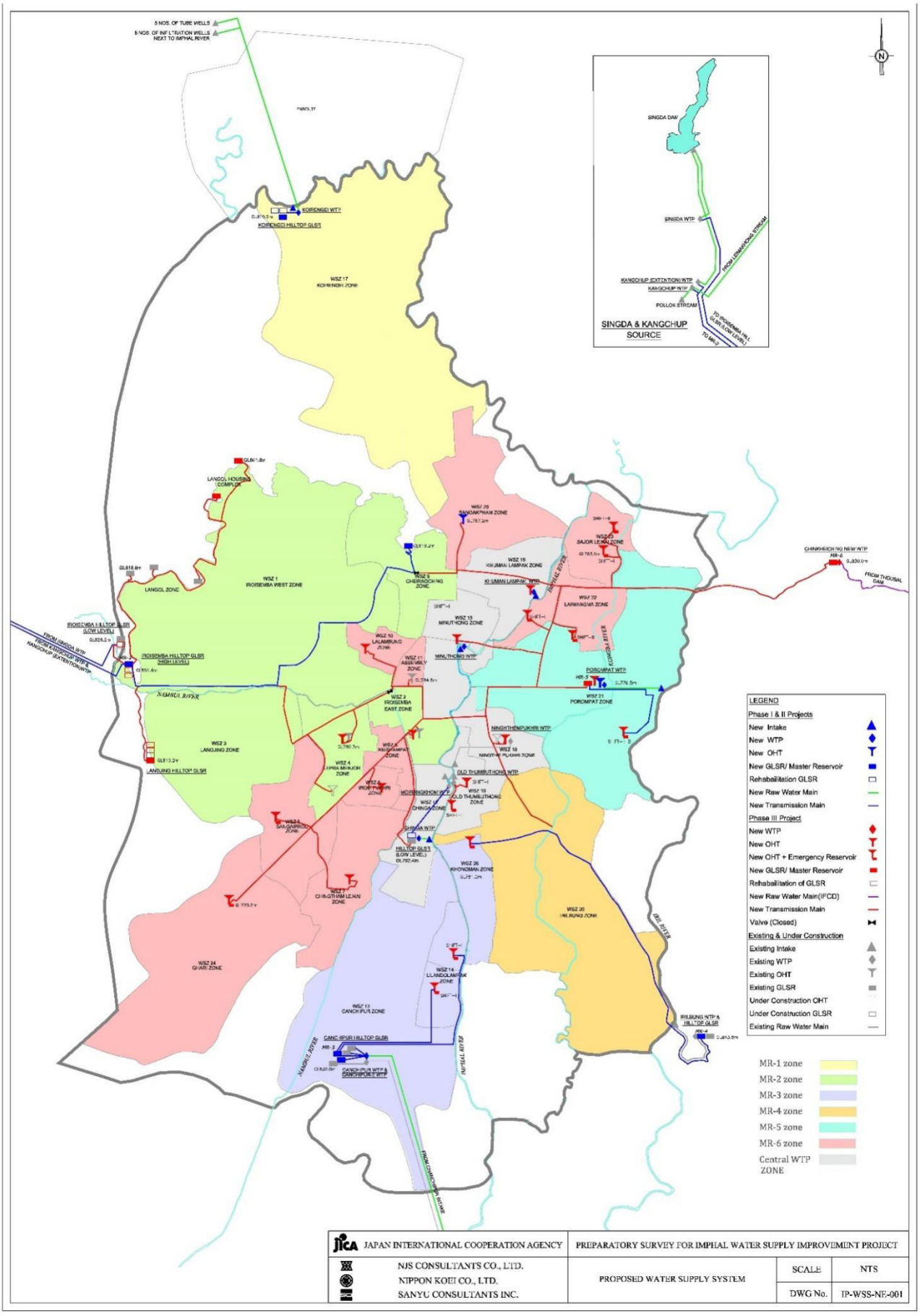
7. We have power to issue this Guarantee under our Memorandum and Articles of Association and the undersigned who is executing this Guarantee has the necessary power to do so under a duly executed Power of Attorney granted to him by the Bank.

Signed and Delivered
For and on behalf of…….. Bank
(Banker's Name)
Name of Bank Manager ……..
Address……..

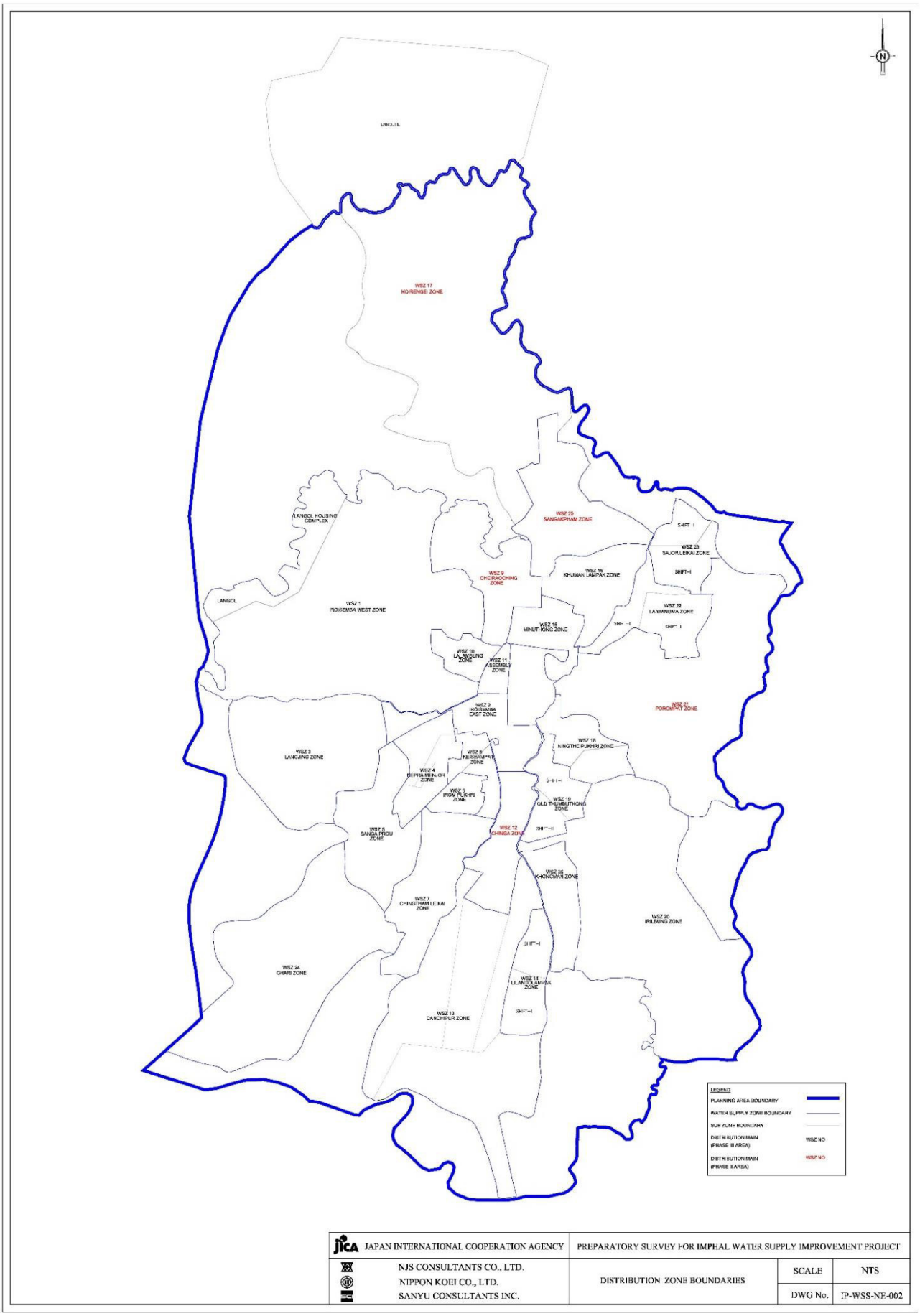
TYPICAL SITE PLAN FOR EXISTING WATER SUPPLY SYSTEM



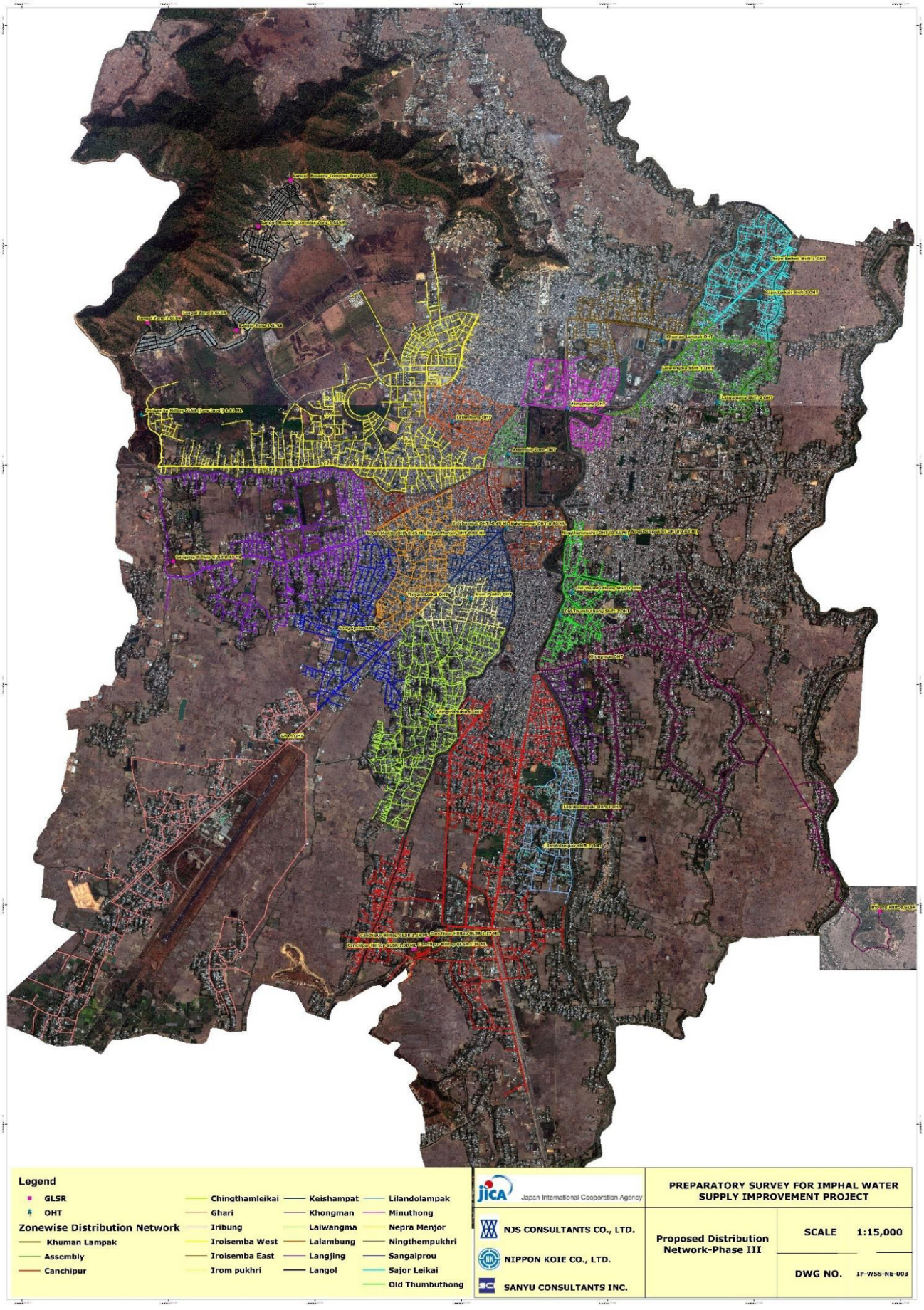
TYPICAL SITE PLAN FOR EXISTING WATER SUPPLY SYSTEM



TYPICAL SITE PLAN FOR DISTRIBUTION ZONE BOUNDARIES



TYPICAL PROPOSED DISTRIBUTION NETWORK



ANNEXURE-VI
WATER TEST REPORT FOR IMPHAL RIVER AT KHUMANLAMPAK (RAW WATER)

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Page No. 1/1

STATE LABORATORY, PHED, GOVT. OF MANIPUR

Lamphelpat – 795004
Email: slabphedmani@gmail.com
Name & Address of Customer:
Executive Engineer
W/ S Maintenance Division- I
PHED, Manipur

TEST REPORT
Report No. SL/PHED/TC768819000000544P
Date of Report:- 19-09-2019
Sample ID :25 /9.
Date of Receipt of Sample:- 19-09-2019
Date of Performance: -19-09-2019
Ref. No. Nil
Date :- 19-09-2019

Certificate No. TC-7688

1	Description of Sample (As declared by customer)	Water
2	Sample Mark (if any, given by the customer)	NA
3	Date of Sampling by the Customer	19-09-2019
4	Source & Place of Sampling	Imphal River at Khumanlampak (Raw Water)
5	Environmental conditions during sampling	NA
6	Sampling Plan & Procedures used	NA
7	Quantity of Water	1 Litre.

We hereby certify that the following sample submitted to the laboratory has been analyzed with the following results

Analysis Results (As per IS 10500:2012)

1. Chemical Testing

Sl No	Characteristic	Acceptable Limit	Permissible Limit	Method of Test	Results			
					1	2	3	4
1	Turbidity in N.T.U	1	5	APHA 23rd Edition 2130 B	85.00			
2	pH value at 25°C	6.5-8.5	No Relaxation	APHA 23rd Edition 4500-H^+ B	6.90			
3	Total Alkalinity in mg/l as CaCO3	200	600	APHA 23rd Edition 2320 B	42.00			
4	Total Hardness in mg/l as CaCO3	200	600	APHA 23rd Edition 2340 C	74.00			
5	Iron (as Fe) in mg/l	1.0	No Relaxation	APHA 23rd Edition 3500-Fe B	0.66			
6	Chloride (as Cl) in mg/l	250	1000	APHA 23rd Edition 4500-Cl^- B	20.00			
7	Total Dissolved Solids in mg/l	500	2000	APHA 23rd Edition 2540 C	66.00			
8	Sulphate (as SO4) in mg/l	200	400	APHA 23rd Edition 4500-SO_4^{2-} E	0.00			
9	Calcium (as Ca) in mg/l	75	200	APHA 23rd Edition 3500 – Ca B	13.60			
10	Magnesium (as Mg) in mg/l	30	100	APHA 23rd Edition 3500 Mg B	9.72			
11	Electrical Conductivity in µmho/l			APHA 23rd Edition 2510 B	102.00			
12	Fluoride in mg/l as F	1.0	1.5	APHA 23rd Edition 4500-F D	0.50			

2. Biological Testing

1	*Total Coliform	0	0	APHA 23rd Edition 9222-A	---			
2	*E- Coli	0	0	APHA 23rd Edition 9222-A	---			

*These parameters are not in the scopes of NABL accreditation.
The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of State Laboratory, PHED, Manipur .The reserved part of sample(s) shall be retained for 30days from the date of Completion of Test.

Prepared by:- Th. Joychandra Singh
Signature
Designation
Biologist

20/9/2019

Authorized signatory:
Name:- S. Debenkanta Singh
Designation:- Chief Chemist
State Laboratory Lamphelpat, PHED Manipur

STATE LABORATORY GOVT. OF MANIPUR
Lamphelpat
795004
PHED

WATER TEST REPORT FOR SINGDA DAM (RAW WATER)

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SL/PHED, Manipur
Page No. 1/1

STATE LABORATORY, PHED, GOVT. OF MANIPUR

Lamphelpat – 795004 Email: slabphedmani@gmail.com Name & Address of Customer: **Executive Engineer** **Project Construction Division** **PHED, Manipur**	TEST REPORT Report No. SL/PHED/TC768819000000543P Date of Report:- 19-09-2019 Sample ID :24/9 Date of Receipt of Sample:- 19-09-2019 Date of Performance: -19-09-2019 Ref. No. A.E-1/WSPCD/Lab-test/2018-19/2 Date :- 19-09-2019	Certificate No. TC-7688

	1	Description of Sample (As declared by customer)	Water
	2	Sample Mark (if any, given by the customer)	NA
	3	Date of Sampling by the Customer	19-09-2019
	4	Source & Place of Sampling	Singda Dam (Raw Water)
	5	Environmental conditions during sampling	NA
	6	Sampling Plan & Procedures used	NA
	7	Quantity of Water	1 Litre.
We hereby certify that the following sample submitted to the laboratory has been analyzed with the following results			

Analysis Results (As per IS 10500:2012)

1. Chemical Testing

Sl.No.	Characteristic	Acceptable Limit	Permissible Limit	Method of Test	Results			
					1	2	3	4
1	Turbidity in N.T.U	1	5	APHA 23rd Edition 2130 B	15.00			
2	pH value at 25°C	6.5-8.5	No Relaxation	APHA 23rd Edition 4500-H^+ B	6.70			
3	Total Alkalinity in mg/l as CaCO3	200	600	APHA 23rd Edition 2320 B	40.00			
4	Total Hardness in mg/l as CaCO3	200	600	APHA 23rd Edition 2340 C	44.00			
5	Iron (as Fe) in mg/l	1.0	No Relaxation	APHA 23rd Edition 3500-Fe B	0.21			
6	Chloride (as Cl) in mg/l	250	1000	APHA 23rd Edition 4500-Cl^- B	20.00			
7	Total Dissolved Solids in mg/l	500	2000	APHA 23rd Edition 2540 C	49.00			
8	Sulphate (as SO4) in mg/l	200	400	APHA 23rd Edition 4500-SO_4^{2-} E	0.00			
9	Calcium (as Ca) in mg/l	75	200	APHA 23rd Edition 3500 – Ca B	8.00			
10	Magnesium (as Mg) in mg/l	30	100	APHA 23rd Edition 3500 Mg B	5.83			
11	Electrical Conductivity in µmho/l			APHA 23rd Edition 2510 B	75.00			
12	Fluoride in mg/l as F	1.0	1.5	APHA 23rd Edition 4500-F^- D	0.50			

2. Biological Testing

1	*Total Coliform	0	0	APHA 23rd Edition 9222-A	---			
2	*E- Coli	0	0	APHA 23rd Edition 9222-A	---			

* These parameters are not in the scopes of NABL accreditation.
The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of State Laboratory, PHED, Manipur .The reserved part of sample(s) shall be retained for 30days from the date of Completion of Test.

Prepared by:- Th. Joychandra Singh
Signature:
Designation
Biologist

20/9/2019

Authorized signatory:
Name:- S. Debenkanta Singh
Designation:- Chief Chemist
State Laboratory Lamphelpat, PHED Manipur

STATE LABORATORY GOVT. OF MANIPUR
Lamphelpat
795004
PHED

WATER TEST REPORT FOR IRIL RIVER (RAW WATER)

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SL/PHED, Manipur
Page No. 1/1

STATE LABORATORY, PHED, GOVT. OF MANIPUR

Lamphelpat – 795004
Email: slabphedmani@gmail.com
Name & Address of Customer:
Executive Engineer
Project Construction Division
PHED, Manipur

TEST REPORT
Report No. SL/PHED/TC768819000000543P
Date of Report:- 19-09-2019
Sample ID :20 /9, 21/9, 22/9 & 23/9
Date of Receipt of Sample:- 19-09-2019
Date of Performance: -19-09-2019

Ref. No. A.E-1/WSPCD/Lab-test/2018-19/2
Date :- 19-09-2019

Certificate No. TC-7688

1	Description of Sample (As declared by customer)	Water
2	Sample Mark (if any, given by the customer)	NA
3	Date of Sampling by the Customer	19-09-2019
4	Source & Place of Sampling	1. Iril River at Porompat , 2. Iril River at Irilbung , 3. Imphal River at Koirengei & 4.Imphal River at Chinga
5	Environmental conditions during sampling	NA
6	Sampling Plan & Procedures used	NA
7	Quantity of Water	1 Litre.

We hereby certify that the following sample submitted to the laboratory has been analyzed with the following results

Analysis Results (As per IS 10500:2012)

1. Chemical Testing

S. No	Characteristic	Acceptable Limit	Permissible Limit	Method of Test	Results			
					1	2	3	4
1	Turbidity in N.T.U	1	5	APHA 23rd Edition 2130 B	60.00	71.00	63.60	68.60
2	pH value at 25°C	6.5-8.5	No Relaxation	APHA 23rd Edition 4500-H^+ B	6.96	6.92	6.89	6.81
3	Total Alkalinity in mg/l as CaCO3	200	600	APHA 23rd Edition 2320 B	80.00	80.00	84.00	60.00
4	Total Hardness in mg/l as CaCO3	200	600	APHA 23rd Edition 2340 C	96.00	110.00	54.00	56.00
5	Iron (as Fe) in mg/l	1.0	No Relaxation	APHA 23rd Edition 3500-Fe B	1.01	0.62	0.68	0.80
6	Chloride (as Cl) in mg/l	250	1000	APHA 23rd Edition 4500-Cl^- B	23.00	20.00	24.00	19.00
7	Total Dissolved Solids in mg/l	500	2000	APHA 23rd Edition 2540 C	143.00	136.00	68.00	72.00
8	Sulphate (as SO4) in mg/l	200	400	APHA 23rd Edition 4500-SO_4^{2-} E	0.00	0.00	0.00	0.00
9	Calcium (as Ca) in mg/l	75	200	APHA 23rd Edition 3500 – Ca B	20.00	21.60	11.20	11.20
10	Magnesium (as Mg) in mg/l	30	100	APHA 23rd Edition 3500 Mg B	11.18	13.61	6.32	6.80
11	Electrical Conductivity in µmho/l			APHA 23rd Edition 2510 B	220.00	210.00	105.00	110.00
12	Fluoride in mg/l as F	1.0	1.5	APHA 23rd Edition 4500-F D	0.50	0.50	0.50	0.50

2. Biological Testing

1	*Total Coliform	0	0	APHA 23rd Edition 9222-A	---	---	---	---
2	*E- Coli	0	0	APHA 23rd Edition 9222-A	---	---	---	---

*These parameters are not in the scopes of NABL accreditation.
The results relate only to the item(s) tested.
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Prepared by:- Th. Joychandra Singh
Signature:
Designation
Biologist

20/9/2019

Authorized signatory
Name:- S. Debenkanta Singh
Designation:- Chief Chemist
State Laboratory Lamphelpat, PHED Manipur

STATE LABORATORY GOVT. OF MANIPUR Lamphelpat 795004 PHED

WATER TEST REPORT FOR IMPHAL RIVER AT MAHABALLI

STATE LABORATORY, PHED, GOVT. OF MANIPUR

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SL/PHED, Manipur
Page No. 1/1

Lamphelpat – 795004 Email: slabphedmani@gmail.com Name & Address of Customer: **AE-III W/S** **PROJECT CONSTRUCTION DIVISION** **P.H.E.D.,Manipur.**	TEST REPORT Report No. SL/PHED/TC768819000000284P Date of Report:- 17-01-2019 Sample ID 13/01 & 14/01. Date of Receipt of Sample:- 14-01-2019 Date of Performance: -16-01-2019 Ref. No. AE-III/WSPCD/PHE/LAB-TEST/2018-19/12 Date :- 14-01-2019

Certificate No. TC-7688

1	Description of Sample (As declared by customer)	Water
2	Sample Mark (if any, given by the customer)	NA
3	Date of Sampling by the Customer	14-01-2019
4	Source & Place of Sampling	1. Moirangkhom (Near Mahaballi) Raw Water & 2. Treated Water
5	Environmental conditions during sampling	NA
6	Sampling Plan & Procedures used	NA
7	Quantity of Water	1 Liter each.

We hereby certify that the following sample submitted to the laboratory has been analyzed with the following results

Analysis Results (As per IS 10500:2012)
Physico-Chemical Analysis

Sl. No.	Characteristic	Acceptable Limit	Permissible Limit	Method of Test	Results			
					1	2		
1	Turbidity in N.T.U	1	5	APHA 23rd Edition 2130 B	40.00	1.00		
2	pH value at 25°C	6.5-8.5	No Relaxation	APHA 23rd Edition 4500-H^+ B	5.10	7.28		
3	Total Alkalinity in mg/l as CaCO3	200	600	APHA 23rd Edition 2320 B	50.00	46.00		
4	Total Hardness in mg/l as CaCO3	200	600	APHA 23rd Edition 2340 C	96.00	75.00		
5	Iron (as Fe) in mg/l	0.3	1.0	APHA 23rd Edition 3500-Fe B	0.30	0.05		
6	Chloride (as Cl) in mg/l	250	1000	APHA 23rd Edition 4500-Cl^- B	10.00	8.00		
7	Total Dissolved Solids in mg/l	500	2000	APHA 23rd Edition 2540 C	100.00	107.00		
8	Sulphate (as SO4) in mg/l	200	400	APHA 23rd Edition 4500-SO_4^{2-} E	20.00	40.00		
9	Calcium (as Ca) in mg/l	75	200	APHA 23rd Edition 3500 – Ca B	19.20	18.00		
10	Magnesium (as Mg) in mg/l	30	100	APHA 23rd Edition 3500 Mg B	11.66	7.29		
11	Electrical Conductivity in µmho/l	-	-	APHA 23rd Edition 2510 B	155.00	165.00		
12	Fluoride in mg/l as F	1.0	1.5	APHA 23rd Edition 4500-F^- D	0.70	0.70		

The results relate only to the item(s) tested.
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Prepared by:- Th. Joychandra Singh
Signature:
Designation
Biologist

STATE LABORATORY GOVT. OF MANIPUR
Lamphelpat
795004
PHED

17/01/2019

Authorized signatory:
Name:- S. Debenkanta Singh
Designation:- Chief Chemist
State Laboratory Lamphelpat, PHED Manipur.

PRE-BID MEETING ATTANDANCE SHEET

Pre-Bid Meeting : 10/01/2020

Name of Work : Water Supply Project for Manipur State (SH: Integrated Water Supply Project for Imphal Planning Phase-III, Package: IWS P-II (W).

No. : CE/PHE/3-94/NDB(W)/P-II/2019/2741 dated 26/12/2019

Place : Office of the Chief Engineer, PHED, GoM.

Time : 11:00 a.m.

Sl. No.	Name of Company/Firm / Contractor	Signature	Remarks
1	WPIL Ltd., Kol Debray Roy Arundra Chatterjee	[signature]	9507019204 d.roy@wpil.co.in a.chatterjee@wpil.co.in
2	M/S EAST INDIA LTD UDH404 Mr. Ashwani Mr. Abhishek Sirohi	[signature]	9999926821 abhisheksirohi@eiol.com.co
3	m/s keystone infra P-LTD 1- Ram Asheesh Ram	[signature]	9453737310/9705399255 PRATAP@KEYSTONEINFRA.COM
4	M/S SPML Infra Limited. MR. PRASENJIT NATH	Prasenjit Nath	9836269607 prasenjit@spml.co.in.
5	ECO PROTECTION ENGINEERS PVT LTD, CHENNAI, MR. DHINESH. S	[signature]	7642040361, 8667213269. Projects@ecoprotection.in. epe.aizawl@gmail.com.
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