



**AMENDMENT ON TECHNICAL SPECIFICATION FOR SEWAGE TREATMENT
PLANT
4X270 MW, BHADRADRI TPP**

SPECIFICATION NO.: PE-TS-411-673A-A001

AMENDMENT NO # 2

REV. NO. 00

DATE: 17/07/2015

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The following modifications with respect to Technical Specification for Sewage Treatment Plant BHEL's Technical specification no **PE-TS-411-673A-A001** shall apply. Bidder to note that existing clauses/details as appearing in the specification stands deleted and clauses/details as mentioned in "Modified to or Read as" column shall be applicable and complied by the bidder as listed below in **SCHEDULE A**.

In addition, new clauses are also added as listed below in **SCHEDULE B** and shall be a part of tender specification. Bidder to comply the same.

SCHEDULE A

MODIFIED CLAUSES/PAGE NUMBERS:

Sl no.	Vol. No.	Section/ Description	Clause no	Page no	Existing clause/details	Modified to or Read as
1.	IIB	SECTION- C1-A	2.1.23	10 of 431	One no. above ground aeration tank of RCC construction (RCC work in BHEL scope) of minimum retention time of 12 hours.	One no. above ground aeration tank of RCC construction (RCC work in BHEL scope) of minimum retention time of 16 hours.
2.	IIB	SECTION- C1-A	2.1.27	11 of 431	Two (2) nos. horizontal centrifugal pump for clear water transfer with 50 m hose pipe.	Two (2) nos. horizontal centrifugal pump for clear water transfer with 100 m hose pipe.
3.	IIB	SECTION- C1-A	2.1.28	11 of 431	One no. RCC sludge drying bed (RCC work in BHEL scope) in three compartment of adequate capacity having recovery of water from bottom for recycle to common sewage collection sump.	One no. filter press having recovery of water for recycle to common sewage collection sump.
4.	IIB	SECTION- C1-A	2.1.55	11 of 431	Media for sludge drying bed.	Media for aeration tank and sludge holding tank.
5.	IIB	SECTION- C1-A	4.0 (c)	14 of 431	Hard Sludge generated in sludge drying bed will be manually disposed by customer.	Hard Sludge generated in filter press will be manually disposed by customer.
6.	IIB	SECTION- C1-A	5.0 (c)	21 of 431	<u>PAINTING SPECIFICATION</u> As per painting details specified elsewhere in specification. ELECTRIC HOIST COLOR SHADE: Color shade: Structure: Golden Yellow, RAL 1004 Panel: paint shade RAL-9002 for complete panel except on end covers whose shade shall be RAL-5012. However, same shall be finalized during detail	<u>PAINTING SPECIFICATION</u> As per painting details specified elsewhere in specification. ELECTRIC HOIST COLOR SHADE: Color shade: Structure: Golden Yellow, RAL 1004 Panel: Opaline green for exterior and semi glossy white for interior. MANUAL HOIST COLOR SHADE:



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					engineering) MANUAL HOIST COLOR SHADE: Trolley: Lemmon yellow (Shade 355 as per IS 5) Hook: Light grey (Shade 631 as per IS 5)	Trolley: Lemmon yellow (Shade 355 as per IS 5) Hook: Light grey (Shade 631 as per IS 5)
7.	IIB	SECTION– C1-F	NIL	148 of 431 to 155 of 431	Datasheet A for STP	Revised datasheet A for STP is attached with this amendment for bidder's adherence.
8.	IIB	SECTION– C (ANNEXURES) – ANNEXURE II	NIL	184 of 431 to 189 of 431	List of Mandatory spares for STP	Revised List of Mandatory spares for STP is attached with this amendment for bidder's adherence.
9.	IIB	SECTION– C (ANNEXURES) –ANNEXURE IX	NIL	222 of 431 to 223 of 431	- P & ID of STP (PE-DG-411-673A-A001) - PLOT PLAN (PE-DG-411-100-M001)	Revised P & ID of STP_R1 (PE-DG-411-673A-A001) and PLOT PLAN_R01 (PE-DG-411-100-M001) indicating location of sewage lifting sumps are attached with this amendment for bidder's adherence.
10.	IIB	SECTION– D1	NIL	226 of 431 to 227 of 431	General description, sewage characteristic technical specification requirement for STP	General description, sewage characteristic technical specification requirement for STP are attached with this amendment for bidder's adherence.
11.	IIB	SECTION– D1	12.0	24 of 431 to 25 of 431	Makes of sub vendors items as applicable to electric hoist	Makes of sub vendors items as applicable to electric hoist has been modified as attached with this amendment.
12.	IIB	SECTION– C1-A	2.1.37	11 of 431	2.5 km fiber optical cable are in bidder's scope for communication between RIO panel and PLC located in STP area.	4.0 km fiber optical cable are in bidder's scope for communication between RIO panel and PLC located in STP area.
13.	IIB	SECTION– C3	8	166 of 431	One number RIO panels to be provided with Fiber Optic cable for connecting the RIO with the PLC. The network communication between RIO and PLC shall be redundant. All the necessary hardware and software is in STP vendor scope of supply. The fiber optic cable of 2.5 KM is required.	One number RIO panels to be provided with Fiber Optic cable for connecting the RIO with the PLC. The network communication between RIO and PLC shall be redundant. All the necessary hardware and software is in STP vendor scope of supply. The fiber optic cable of 4.0 KM is required.
14.	IIB	SECTION– C1-A	2.1.56 (c)	13 of 431	Piping from clear water disposal pumps upto nearest plant drain approx. 25 meters shall be in bidder's scope. In addition, 100 meter of hose pipe	100 meter hose pipe from clear water disposal pumps shall be provided by bidder for horticulture purpose.



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					shall be in bidder's scope for horticulture purpose.																																																																																									
15.	IIB	SECTION– C1-A	2.1.56 (b)	12 of 431	Pipe distances from sumps outside STP area upto STP area are given below:	Pipe distances from sumps outside STP area upto STP area are given below:																																																																																								
					<table><tr><th>SL. NO.</th><th>FROM</th><th>TO</th><th>DISTANCE (In meters)</th></tr><tr><td>1.</td><td>Sewage sump (S1)</td><td>STP area</td><td>280</td></tr><tr><td>2.</td><td>Sewage sump (S2)</td><td>Sewage sump (S4)</td><td>310</td></tr><tr><td>3.</td><td>Sewage sump (S3)</td><td>Sewage sump (S1)</td><td>290</td></tr><tr><td>4.</td><td>Sewage sump (S4)</td><td>Sewage sump (S1)</td><td>250</td></tr><tr><td>5.</td><td>Sewage sump (S5)</td><td>Sewage sump (S4)</td><td>400</td></tr><tr><td>6.</td><td>Sewage sump (S6)</td><td>Sewage sump (S5)</td><td>260</td></tr><tr><td>7.</td><td>Sewage sump (S7)</td><td>Sewage sump (S8)</td><td>370</td></tr><tr><td>8.</td><td>Sewage sump (S8)</td><td>Sewage sump (S6)</td><td>260</td></tr><tr><td>9.</td><td>Sewage sump (S9)</td><td>Sewage sump (S3)</td><td>480</td></tr><tr><td>10.</td><td>Sewage sump (S10)</td><td>Sewage sump (S9)</td><td>460</td></tr></table>	SL. NO.	FROM	TO	DISTANCE (In meters)	1.	Sewage sump (S1)	STP area	280	2.	Sewage sump (S2)	Sewage sump (S4)	310	3.	Sewage sump (S3)	Sewage sump (S1)	290	4.	Sewage sump (S4)	Sewage sump (S1)	250	5.	Sewage sump (S5)	Sewage sump (S4)	400	6.	Sewage sump (S6)	Sewage sump (S5)	260	7.	Sewage sump (S7)	Sewage sump (S8)	370	8.	Sewage sump (S8)	Sewage sump (S6)	260	9.	Sewage sump (S9)	Sewage sump (S3)	480	10.	Sewage sump (S10)	Sewage sump (S9)	460	<table><tr><th>SL. NO.</th><th>FROM</th><th>TO</th><th>DISTANCE (In meters)</th></tr><tr><td>1.</td><td>Sewage sump (S1)</td><td>STP area</td><td>440</td></tr><tr><td>2.</td><td>Sewage sump (S2)</td><td>Sewage sump (S1)</td><td>370</td></tr><tr><td>3.</td><td>Sewage sump (S3)</td><td>Sewage sump (S2)</td><td>370</td></tr><tr><td>4.</td><td>Sewage sump (S4)</td><td>Sewage sump (S1)</td><td>390</td></tr><tr><td>5.</td><td>Sewage sump (S5)</td><td>Sewage sump (S4)</td><td>440</td></tr><tr><td>6.</td><td>Sewage sump (S6)</td><td>Sewage sump (S5)</td><td>160</td></tr><tr><td>7.</td><td>Sewage sump (S7)</td><td>Sewage sump (S5)</td><td>590</td></tr><tr><td>8.</td><td>Sewage sump (S8)</td><td>Sewage sump (S9)</td><td>550</td></tr><tr><td>9.</td><td>Sewage sump (S9)</td><td>Sewage sump (S1)</td><td>640</td></tr><tr><td>10.</td><td>Sewage sump (S10)</td><td>STP area</td><td>590</td></tr></table>	SL. NO.	FROM	TO	DISTANCE (In meters)	1.	Sewage sump (S1)	STP area	440	2.	Sewage sump (S2)	Sewage sump (S1)	370	3.	Sewage sump (S3)	Sewage sump (S2)	370	4.	Sewage sump (S4)	Sewage sump (S1)	390	5.	Sewage sump (S5)	Sewage sump (S4)	440	6.	Sewage sump (S6)	Sewage sump (S5)	160	7.	Sewage sump (S7)	Sewage sump (S5)	590	8.	Sewage sump (S8)	Sewage sump (S9)	550	9.	Sewage sump (S9)	Sewage sump (S1)	640	10.	Sewage sump (S10)	STP area	590
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16.	IIB	SECTION– C3	Nil	168 of 431	Specific technical requirement	Additional specific technical requirements to be adhere by bidder attached with this amendment.																																																																																								
17.	IIB	SECTION– C3	Nil	169 of 431	PLC configuration Sewage Treatment plant	Revised PLC configuration Sewage Treatment plant attached with this amendment for bidder's adherence.																																																																																								
18.	IIB	SECTION– D3	Nil	347 of 431	UPS Single Line diagram	Revised UPS Single Line diagram attached with this amendment for bidder's adherence.																																																																																								



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SCHEDULE B

NEW CLAUSES / SCOPE ADDED:

Sl no.	Vol. No.	Section/ Description	New Clause no	Page no	Description
19.	IIB	SECTION- C1-A	2.1.56	12 of 431	One no. (1X100%) Filter press shall be provided by bidder.
20.	IIB	SECTION- C1-A	2.1.57	12 of 431	Two (2) nos. (2X100%) horizontal filter press feed screw pumps shall be provided by bidder.
21.	IIB	SECTION- C1-A	2.1.58	12 of 431	One no. Sludge Holding tank (RCC work in BHEL scope) in two compartment each of 24 m3 capacity.
22.	IIB	SECTION- C1-E	8.00.00	146 of 431	Bidder shall provide one final coat additionally of same DFT as specified in SECTION C1 – E (painting specification) of tender specification at site after completion of erection of each equipment / item. Bidder to adhere the same.
