EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 05 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
C&I-3-01	VI/A	IIC	3.01.00	10/18	Special C&I systems shall be provided by bidder including but not limited to the following as a minimum. The detail specification shall be as per QSGM's / QSTGM's / Bidder's standard and proven practice. All these systems shall be connected to respective DDCMIS system for control and monitoring purpose. …… Acoustic Steam Leak Detection System (Thirty number of sensors per boiler), …….. Mill & Air heater Fire Detection System.	Special C&I systems shall be provided by bidder including but not limited to the following as a minimum. The detail specification shall be as per QSGM's / QSTGM's / Bidder's standard and proven practice. All these systems shall be connected to respective DDCMIS system for control and monitoring purpose. …… Acoustic Steam Leak Detection System (**Fifty** number of sensors per boiler), …….. Mill & Air heater Fire Detection System.
SG1-42	VI/A	SUB-SECTION-VI CHAPTER-01 SG & AUXILIARIES	-	38 OF 38	-	General note added at the end of the table at page no. 38 of 38- **General Note:** ''Wherever quantity has been specified as percentage (%), it shall mean percentage (%) of the total population of the item in the station (project), unless specified otherwise and the fraction will be rounded off to the next higher whole number. ''

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 05 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

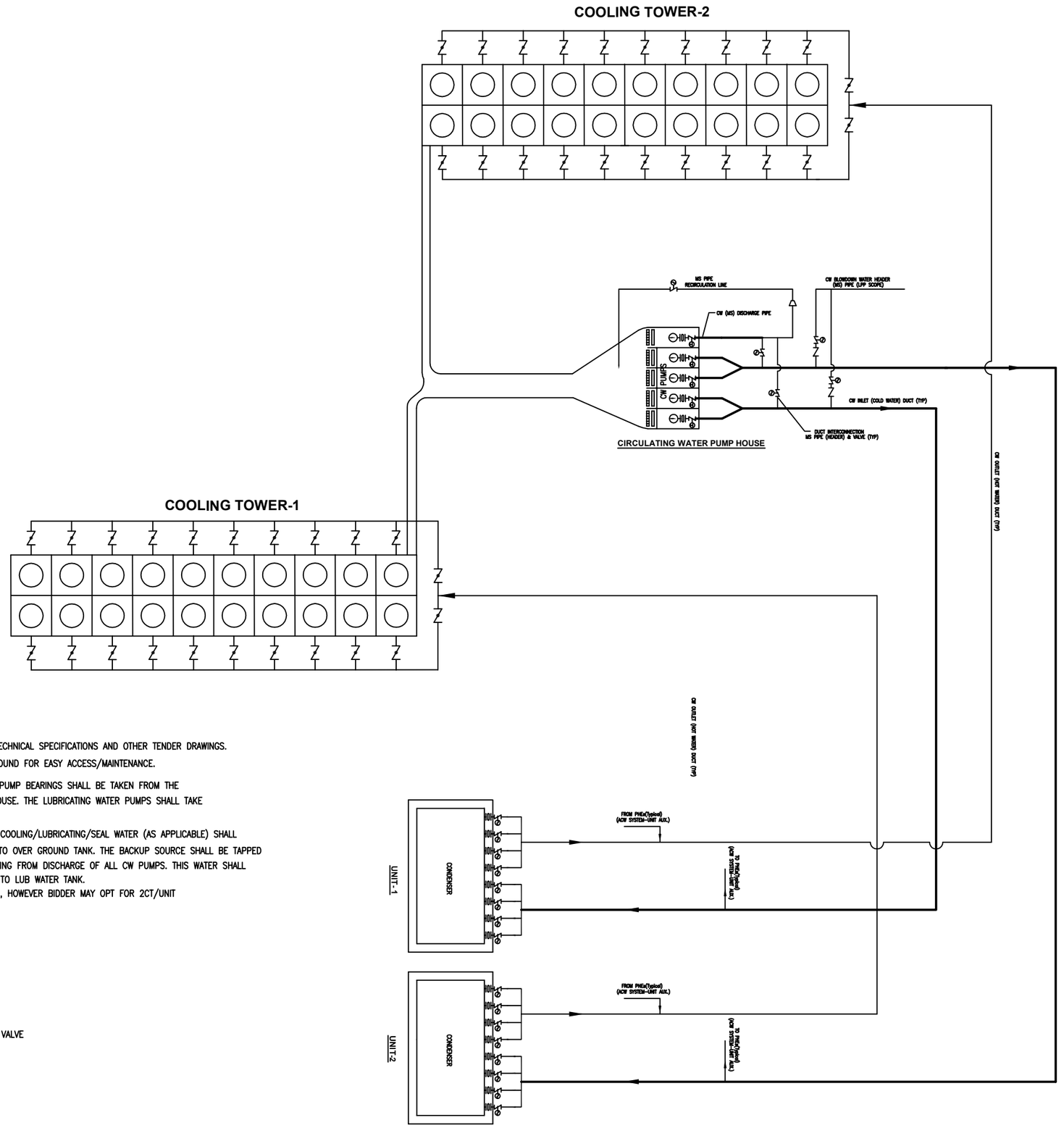
S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
WS4-01	VI/A	IIA-11	1.02.00	2 OF 3	Cooling Towers – one (1) no/unit. Type of tower indicated elsewhere in the specification …….	Cooling Towers- one (1) no/unit or Two (2) nos/unit (to be decided by bidder). Type of tower indicated elsewhere in the specification …….
WS4-02	VI/B	A-15	3.3	11 of 43	Bidder shall provide spare cells (Minimum four (4) per tower) in the cooling tower to facilitate maintenance without affecting the tower performance.	Bidder shall provide spare cells (Minimum four (4) per tower) for one (1) no. tower/unit configuration and minimum two (2) numbers per tower for Two (2) nos tower/unit configuration) in the cooling tower to facilitate maintenance without affecting the tower performance.
WS4-03	VI/B	A-15	3.9	11 of 43	The length of the cooling tower shall be decided based on GLP drawing. However, the maximum length of the tower excluding space required for staircases at both ends shall not exceed 300m for cooling towers.	The length of the cooling tower shall be decided based on Plant Layout to be optimized by the bidder.
WS4-04	VI/B	A-01	3.02.00 a)	57 OF 101	Number of Cooling Towers: Two (2) numbers (One Number / Unit)	Number of Cooling Towers: Two (2) numbers (One Number / Unit) or Four (4) numbers (Two Numbers / Unit) as per configuration
WS4-05	VI/E	-	-	-	Tender Drawing “Scheme of Circulating Water System Rev A”	Tender drawing replaced with revised “Scheme of Circulating Water System Rev B”

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 05 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
WS4-06	VI/B	A-15	3.01	11 of 43	Each cooling tower shall be complete with tower, basin, foundations and mechanical equipment as described below. The tower shall be of single inlet, cross flow or counter flow type ……..	Each cooling tower shall be complete with tower, basin, foundations and mechanical equipment as described below. The tower shall be of single inlet or **double inlet**, cross flow or counter flow type ……..
WS4-07	Amendment no. WS1-17				Excess AWRS water, if any after use in Ash Handling System, shall be suitably treated for recycle and re-use in Service water/ CHP dust suppression etc. to ensure ZLD.	Clause deleted.
MH-50	Amendment No. 02 to Technical Specifications: MH-23				i) Decanted water shall be pumped from owners' pumping system located at ash dyke. There shall be one no. working AWRS Pump of **600 m3/hr** flow rate (owners' pumping system), is envisaged. Hence, maximum recovery water received inside plant shall be **600 m3/hr**, accordingly pipeline of **400NB** diameter within plant boundary upto terminal point shall be in Bidders scope.	Decanted water shall be pumped from owners' pumping system located at ash dyke. There shall be one no. working AWRS Pump of **300 m3/hr** flow rate (owners' pumping system), is envisaged. Hence, maximum recovery water received inside plant shall be **300 m3/hr**, accordingly pipeline of **300NB** diameter within plant boundary upto terminal point shall be in Bidders scope. **Decanted water from ash pond shall be reused in Ash Handling System**.

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
MH-51	Amendment No. 02 to Technical Specifications: MH-7				**Two numbers (2 Nos)** of Mechanical Extractor & Biomass Feeder **below each Biomass** storage silos with drives, dust hoods (for Feeder), all mechanical, electrical accessories and supporting structures etc to feed the Biomass to downstream conveyors. Mechanical extractor also known as Silo extractor/Rotary extractor, is a machine for efficiently extracting materials having poor natural flowing properties such as fibrous, wet materials prone to blockage. Bidder to provide Silo extractor/Rotary extractor consists of rotating chute, extractor blade/sweeper arm/paddle wheel, slewing arrangement etc.	**One number (1 No)** of Mechanical Extractor & Biomass Feeder **below each Biomass** storage silos with drives, dust hoods (for Feeder), all mechanical, electrical accessories and supporting structures etc to feed the Biomass to downstream conveyors. Mechanical extractor also known as Silo extractor/Rotary extractor, is a machine for efficiently extracting materials having poor natural flowing properties such as fibrous, wet materials prone to blockage. Bidder to provide Silo extractor/Rotary extractor consists of rotating chute, extractor blade/sweeper arm/paddle wheel, slewing arrangement etc.
Elect1-14	**VI/PART -A**	**SUB SECTION-IIB – ELECTRICAL EQUIPMENTS/SYSTEMS**	**1.16.09**	**14 OF 20**	Addition of new clause	In Stage-I switchyard area, the existing gantry structures for main bus extension may be used subjected to meeting the requirements of short circuit force design calculation of gantry structures with fault level of 63KA. Also, in Lara stage-I Switchyard area due to space constraint, the bidder may design considering the bay width of <27mtr for 400KV Level subjected to meet the statutory electrical

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
						clearances etc. and the same shall be finalized during the detailed engineering stage. Isolators for the above may be used of HCB/Double break.
Elect1-15	VI/Part -B	B-04/ **TRANSFORMERS AND ASSOCIATED MAINTENANCE, MONITORING & TESTING EQUIPMENTS**	1.11.04 Note: -	24 of 38	Addition of new clause	(vii) For GT, ST and UT: dynamic short circuit withstand test shall be conducted on one unit of each type and rating of transformers, to validate the design and quality, unless such test has been successfully conducted as per Indian Standard 2026 part 5 within last ten years on transformer of similar design. Criteria for similar design shall be as per Annexure J of Central Electricity Authority's "Standard Specifications and Technical Parameters for Transformers and Reactors (66kV and above)", in line with latest "Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022"



NOTES :

1. THIS DRG. SHOULD BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS AND OTHER TENDER DRAWINGS.
2. ALL THE VALVES SHALL PREFERABLY BE LAID OVERGROUND FOR EASY ACCESS/MAINTENANCE.
3. THE LUBRICATING / SEAL WATER REQUIRED FOR THE PUMP BEARINGS SHALL BE TAKEN FROM THE STORAGE TANKS TO BE PROVIDED NEAR THE PUMP HOUSE. THE LUBRICATING WATER PUMPS SHALL TAKE SUCTION FROM OVERGROUND STORAGE TANK.
4. DURING INITIAL FILLING AND NORMAL OPERATION, THE COOLING/LUBRICATING/SEAL WATER (AS APPLICABLE) SHALL BE TAPPED FROM NEAREST WATER SOURCE AND FED TO OVER GROUND TANK. THE BACKUP SOURCE SHALL BE TAPPED FROM A COMMON HEADER FORMED BY TAKING A TAPPING FROM DISCHARGE OF ALL CW PUMPS. THIS WATER SHALL PASS THROUGH 2 X 100% DUPLEX FILTERS AND FED TO LUB WATER TANK.
5. THIS DRG IS INDICATIVE FOR 1CT/UNIT CONFIGURATION, HOWEVER BIDDER MAY OPT FOR 2CT/UNIT CONFIGURATION AS SPECIFIED ELSEWHERE.

LEGEND :

⊖	PUMPS
	ELECTRICALLY ACTUATED BUTTERFLY VALVE
	ELECTRO HYDRAUCALLY ACTUATED BUTTERFLY VALVE
	MANUALLY ACTUATED BUTTERFLY VALVE
	NON-RETURN (CHECK) VALVE
	EXPANSION JOINT
	ISOLATION VALVE
WTP	WATER TREATMENT PACKAGE
CT	COOLING TOWER PACKAGE SCOPE
EMP	EMPLOYER'S SCOPE
CWC	CW SYSTEM CIVIL WORK PACKAGE
CW	EQUIPMENT PACKAGE
	CW CHANNEL
	CW DUCT

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
A	RELEASED FOR TENDER				CLEARED BY					

एन टी पी सी NTPC

NTPC Limited

(A GOVT. OF INDIA ENTERPRISE)

ENGINEERING DIVISION

PROJECT: LARA SUPER THERMAL POWER PROJECT
STAGE-II (2 X 800MW)

TITLE: SCHEME OF CIRCULATING WATER SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A1	--	9587-999-POM-A-059	B

CAD FILE NAME : 9587-999-POM-A-059

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 06 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
PU1-1	VI/PART-B	A-01 EQUIPMENT SIZING CRITERIA	3.13.02 Point 2 (Note- i)	79 of 101	(i) Dry bulb temperature during summer season is **43 deg C.** The criteria which gives higher number of air changes/higher quantity of air of either of condition (Cl. 1 or 2) flow shall be selected.	(i) Dry bulb temperature during summer season is **44 deg C.** The criteria which gives higher number of air changes/higher quantity of air of either of condition (Cl. 1 or 2) flow shall be selected.
TG4-01	VI/PART-B	A-01 EQUIPMENT SIZING CRITERIA	2.01.02 Note 7	43 of 101	Extent and duration of permissible variations in rated steam temperature shall be same as specified for rated steam temperature upto 566 deg C in IEC-45 even though rated steam temperature exceeds 566 deg C.	Extent and duration of permissible variations in rated steam temperature shall be as per latest IEC-45.

EPC Package for Lara Super Thermal Power Project, Stage II (2 X 800 MW)
Amendment No. 7 to Technical specification Section VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
WS5-01	VI/A	I-A	4.2	7-8 OF 36	The Bidder/its Sub-vendor should meet the qualifying requirements of any one of the qualifying routes stipulated under clause 4.2.1 or 4.2.2 or 4.2.3…… …... **Notes for clause 4.2.1, 4.2.2 and 4.2.3** (i) For qualification under clause 4.2.1, a firm can meet the requirements stipulated under clause 4.2.1 above either singularly or collectively along with its Subsidiaries. In such a case, the Bidder/its sub-vendor shall be required to furnish a letter of technical support from Collaborator / Associate / Holding company along with all its subsidiaries extending support to the holding company / Associate or collaborator for complying requirements of clause 4.2.1 for successful performance of CW pumps, as per the format enclosed in the bidding document. This letter of technical support should be submitted to Employer prior to the placement of order on approved sub-vendor. (ii) (*) Specific speed as stipulated above is the specific speed calculated at the best efficiency point of the pumps as defined in Hydraulic Institute Standards (HIS).	The Bidder/its Sub-vendor should meet the qualifying requirements of any one of the qualifying routes stipulated under clause 4.2.1 or 4.2.2 or 4.2.3….. …… **Notes for clause 4.2.1, 4.2.2 and 4.2.3** (i) For qualification under clause 4.2.1, a firm can meet the requirements stipulated under clause 4.2.1 above either singularly or collectively along with its Subsidiaries. In such a case, the Bidder/its sub-vendor shall be required to furnish a letter of technical support from Collaborator / Associate / Holding company along with all its subsidiaries extending support to the holding company / Associate or collaborator for complying requirements of clause 4.2.1 for successful performance of CW pumps, as per the format enclosed in the bidding document. This letter of technical support should be submitted to Employer prior to the placement of order on approved sub-vendor. **Or** **In case the bidder/its sub-vendor has acquired the design and technology of the offered pump model from its collaborator under the Technology transfer/Assistance/Licensing Agreement and has executed/is executing the contract(s) for the offered pump model involving design, manufacturing, supply, erection and commissioning, the bidder/its sub-vendor is required to submit the copy of whole/part of the agreement or any other supporting document(s) establishing technology transfer covering drawings/documentation of design, manufacturing, quality assurance plans and imparting relevant training of personnel. Further, the bidder shall be required to submit a letter for satisfactory performance of CW pumps along with the techno commercial bid, as per the format enclosed in the bidding documents.** (ii) (*) Specific speed as stipulated above is the specific speed calculated at the best efficiency point of the pumps as defined in Hydraulic Institute Standards (HIS).

EPC Package for Lara Super Thermal Power Project, Stage II (2 X 800 MW)
Amendment No. 7 to Technical specification Section VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
WS5-02	VI/A	Attachment 3K of Sub section I-A	-	200 of 401	New Sl. No.	16. We confirm to submit a Letter of technical support/Letter for successful operation of CW Pumps (as applicable) as per enclosed format

(On company Letter Head of the Bidder)

TO:

[EMPLOYERS NAME & ADDRESS]

Subject: Letter to ensure satisfactory performance of CW Pumps for _____ Package

Dear Sirs,

This has reference to your IFB reference no. _____ for the captioned package.

We _____ (Name of Bidder) confirm that *We / our Indian *Subsidiary/*JV Company/ *Indian Manufacturing Company under Technology transfer/Assistance/Licensing Agreement for CW Pumps with M/s _____ (Name of Collaborator*/Licensor*/Technology Provider) have acquired technology for CW Pumps (Model no _____). We further confirm that we / our Indian *Subsidiary/ *JV Company/ *Indian Manufacturing Company have fully absorbed the technology regarding design, manufacturing, erection, testing and commissioning for above equipment(s). As per *our/Our Indian *Subsidiary's/ *JV Company's / *Indian manufacturing company's Technology transfer/Assistance/Licensing Agreement with the *Collaborator/*Licensor/*Technology Provider, *we / our Indian *Subsidiary/*JV Company / *Indian Manufacturing Company have right to continue the design, manufacturing and supply of these equipment(s) even after expiry of the Agreement.

We confirm that in case of the award of the 'Contract' for the subject package to us, we shall be fully responsible for the satisfactory performance of the CW Pumps covered under the contract. Further, we shall submit the basic design documents of Pump [Pump GA, suction draft tube & discharge volute (if applicable), X-sectional drawings, Data sheet, Performance curve, etc.] duly vetted by the original technology provider. However, in the event any problem is encountered on CW Pumps during execution of the contract, we shall resolve the same within reasonable time **(in the opinion of the owner)** by ourselves. In case we are not able to resolve the issue ourselves, we agree to first engage our collaborator*/licensor*/technology Provider* and (if required) then engage any technical expert / firm having competency to resolve such issues.

We, hereby undertake and confirm that this Letter shall be irrevocable and valid up to the end of the defect liability period of the contract.

Signature of Bidder's Authorised signatory: _____
Name _____
Designation _____
Date_____

Common Seal of the Company

Note: Collaborator/Licensor/Technology Provider mean the party from which the 'Bidder' has absorbed the technology under Technology transfer agreement.

*** Strike off whichever is not applicable.**

EPC Package for Lara Super Thermal Power Project, Stage II (2 X 800 MW)
Amendment No. 7 to Technical specification Section VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
WS5-03	VI/A	I-A	4.3	8 of 36	4.3 Induced Draft Cooling Towers 4.3.1 The bidder/ its sub-vendor should have designed by itself, constructed and commissioned at least one (01) number Induced Draught Cooling Tower in RCC or Pultruded Fiberglass Reinforced Plastic(FRP) Construction of capacity not less than 13000m3/hr which should have been in successful operation for atleast one(1) year. The reference Cooling Towers ……offered by the Bidder/ its sub-vendor. OR 4.3.2 The Bidder/ its sub-vendor should be a wholly or partially(with minimum 51% holding) held Indian subsidiary of a firm who in turn meets the requirements of clause 4.3.1 above. ….. In such a case …… for successful performance of the Cooling Tower. Notes: ……	4.3 Induced Draft Cooling Towers 4.3.1 The bidder/ its sub-vendor should have **designed**, constructed and commissioned at least one (01) number Induced Draught Cooling Tower in RCC or Pultruded Fiberglass Reinforced Plastic (FRP) Construction of capacity not less than 13000 m^3/hr which should have been in successful operation for at least one (1) year. The reference Cooling Towers ……offered by the Bidder/ its sub-vendor. ***In case the reference cooling tower was designed by a party other than the Bidder /its sub vendor, the Bidder/ its sub vendor shall employ a cooling tower designer, who has independently designed an Induced Draught Cooling Tower of same type as being offered of capacity not less than 13,000 Cu.M/Hr in RCC or Pultruded Fiberglass Reinforced Plastic (FRP) construction and which should have been in successful operation for at least one(1) year.*** ***Further, if such designer has not carried out the engineering activities by itself in respect of the system of the reference installation against which the designer is seeking the qualification, then the engineering of the package shall be carried out by an Engineering firm who should have engineered an Induced Draught Cooling Tower of same type & construction as being offered of capacity not less than 13,000 Cu.M/Hr in RCC or Pultruded Fiberglass Reinforced Plastic (FRP) construction and which should have been in successful operation for at least one(1) year.*** ***In such a case, the Bidder shall be required to furnish a letter of technical support from the Cooling Tower Designer and Engineering firm (as applicable) for successful performance of Cooling Tower system, as per the format enclosed in the bidding document. This letter of technical support should be submitted to Employer prior to the placement of order on approved sub-vendor***

EPC Package for Lara Super Thermal Power Project, Stage II (2 X 800 MW)
Amendment No. 7 to Technical specification Section VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
						OR 4.3.2 The Bidder/ its sub-vendor should be a wholly or partially(with minimum 51% holding) held Indian subsidiary of a firm who in turn meets the requirements of clause 4.3.1 above …….. In such a case …… for successful performance of the Cooling Tower. ***OR*** **4.3.3 The Bidder/ its sub-vendor who has independently constructed RCC cooling towers can also participate alongwith it's Holding company/Collaborator/Associate who in turn meets the requirements of clause 4.3.1 above.** ***In such a case, the Bidder shall be required to furnish a Deed of Joint Undertaking executed by the Bidder/sub-vendor and it's Holding company/Collaborator/Associate for the successful performance of Cooling Tower, as per the format enclosed with the bidding documents. The Deed of Joint Undertaking (DJU) shall be submitted at the time of placement of order on the approved sub-vendor. In case of award, Bidder/sub-vendor and it's Holding company/Collaborator/Associate shall each be required to furnish an on-demand bank guarantee for INR 40 million (Forty Million only) in addition to the contract performance security to be furnished by the bidder.***
WS5-04	VI/A	Attachment - 3K of IA	-	-	Attachment 3 K of 4.3.1	Attachment 3K of 4.3.1 (Revised) & 4.3.3 (New Addition) along with format of Letter of support and DJU as attached.

PROVENNESS OF induced draft COOLING TOWER

I. (A) Details of Induced draught Cooling Towers (as per clause 4.3.1of Sub-Section-IA, Part-A, Section-VI of Bidding Documents

In support of Sub-Qualifying Requirements of Clause 4.3.1 of Sub-Section-IA, Part-A, Section-VI of Bidding Document, we confirm that We/our Sub-vendor have designed, constructed and commissioned at least one (01) number Induced Draught Cooling Tower in RCC or Pultruded Fiberglass Reinforced Plastic(FRP) Construction of capacity not less than 13000m3/hr which has been in successful operation for atleast one year(1) prior to the date of Techno-commercial bid opening.

The reference Cooling Towers are of the same type i.e. counter flow or cross flow as is being offered and of the same construction type i.e. RCC construction or FRP construction as being offered by us.

We shall furnish a letter of technical support from our cooling tower designer/ Engineering firm (as applicable) for the satisfactory performance of Cooling Towers as per the format enclosed in the bidding document before placement of award of Cooling Tower.

The details of the reference cooling tower is furnished below:

Sl. No.	**Description/Details**	**Plant**
1.	Description of Work and Name of Client	.....
2.	Location/Address of the Plant/works	.....
3.	Address of the Client (including Contact Person Name, Telephone No, e-mail etc.)	.....
4.	No. of Cooling Towers	.....
5.	Capacity of each Cooling Tower (Cu.M/hr.)	.....
6.	Type of Fill (splash/modular/trickle type)	.....
7.	Type of Construction	.....
8.	Whether scope of works included	
	(a) Design of Cooling Towers by Bidder/its Sub-vendor	YES*/NO*

	(b)	Construction of Cooling towers	YES*/NO*
	(c)	Commissioning of Cooling towers	YES*/NO*
9.	Date of Commissioning of the Cooling tower		
10.	Certificate from client to substantiate Bidder's QR data is enclosed at Annexure ..... to this Attachment-3K		YES*/NO*
11.	Whether the reference cooling tower at sl. No. 1 is designed by the bidder/ sub vendor		YES*/NO*
12.	Whether the reference cooling tower at sl. No. 1 is designed by party other than bidder/ sub vendor		YES*/NO*
13	Name of the party who has designed reference cooling tower		
14.	Whether the reference cooling tower at sl. No. 1 is engineered by designer		YES*/NO*
15.	Name of the Engineering firm who has engineered reference cooling tower		
14.	Whether Documentary evidence/ certificate(s) from client enclosed for the above data		Yes* / No*

- * Strike off whichever is not applicable.

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Common Seal).....

(Bidder / Sub-vendor)

I. (B) Details of Induced draught Cooling Towers (as per clause 4.3.2 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents

In support of Sub-Qualifying Requirements of Clause 4.3.2 of Sub-Section-IA, Part-A, Section-VI of Bidding Document, we confirm that We are a wholly or partially (with minimum 51% holding) held Indian subsidiary of a firm who fulfills the requirements in Clause 4.3.1 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents. We , on our own/ alongwith our holding company have executed/ are executing atleast one contract involving design, construction and commissioning of atleast one(1) number Induced Draft Cooling Tower in RCC/ Pultruded Fiberglass Reinforced Plastic (FRP) Construction of capacity not less than 6500m3/hr.

We shall furnish a letter of technical support from our Holding Company for the satisfactory performance of Cooling Towers as per the format enclosed in the bidding document before placement of award of Cooling Tower.

The details of the reference cooling tower is furnished below:

Sl. No.	**Description/Details**	**Plant**
1.	Description of Work and Name of Client	.....
2.	Location/Address of the Plant/works	.....
3.	Address of the Client (including Contact Person Name, Telephone No, e-mail etc.)	.....
4.	No. of Cooling Towers	.....
5.	Capacity of each Cooling Tower (Cu.M/hr.)	.....
6.	Type of Fill (Other than splash/modular/trickle type) Bidder to Specify the type of fill	.....
7.	Type of Construction	.....
8.	Whether scope of works included	
	(a) Design of Cooling Towers by Bidder/its Sub-vendor associate/Collaborator	YES*/NO*
	(Name of Designer)	.....
	(b) Construction of	YES*/NO*

		Cooling towers	
	(c)	Commissioning of Cooling towers	YES*/NO*
9.	Date of Commissioning of the Cooling tower		
10.	Certificate from client to substantiate Bidder's QR data is enclosed at Annexure ..... to this Attachment-3K		YES*/NO*
11.	Whether the reference cooling tower at sl. No. 1 is designed by the bidder/ sub vendor		YES*/NO*
12.	Whether the reference cooling tower at sl. No. 1 is designed by Sub-vendor's own engineers		YES*/NO*
13.	Whether Documentary evidence/ certificate(s) from client enclosed for the above data		Yes* / No*

- * Strike off whichever is not applicable.

Date : (Signature).....

Place : (Printed Name).....

(Designation).....
(Common Seal).....

Date : (Signature).....

Place : (Printed Name).....

(Bidder / Sub vendor / Associate/ Collaborator)

I. (C) Details of Induced draught Cooling Towers (as per clause 4.3.3 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents

In support of Sub-Qualifying Requirements of Clause 4.3.3 of Sub-Section-IA, Part-A, Section-VI of Bidding Document, we confirm that We/our Sub-vendor have independently constructed RCC cooling towers and our Holding company/Collaborator/Associate fulfills the requirements in Clause 4.3.1 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents.

We shall furnish a Deed of Joint Undertaking executed by us/ our sub-vendor and Holding company/Collaborator/Associate for the successful performance of Cooling Tower, as per the format enclosed with the bidding documents. The Deed of Joint Undertaking (DJU) shall be submitted along with on demand bank-guarantee at the time of placement of order on the approved sub-vendor.

The details of the reference cooling tower is furnished below:

Sl. No.	**Description/Details**	**Plant**
1.	Description of Work and Name of Client	.....
2.	Location/Address of the Plant/works	.....
3.	Address of the Client (including Contact Person Name, Telephone No, e-mail etc.)	.....
4.	No. of Cooling Towers	.....
5.	Type of Construction	.....
6.	Details of ref cooling tower of Holding company /Collaborator / Associate as per clause 4.3.1	
7.	Documentary evidence / Certificate from client to substantiate Bidder's QR data is enclosed at Annexure ..... to this Attachment-3K	YES*/NO*

- * Strike off whichever is not applicable.

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Common Seal) .....

(Bidder / Sub-vendor)

LETTER OF SUPPORT FOR SATISFACTORY PERFORMANCE OF COOLING TOWER

TO
[EMPLOYER'S NAME & ADDRESS]
Sub: Letter of Technical Support submitted From …….. (name of the Associate*/ Collaborator*/Holding Company*/Designer*/ Engineering Firm*) undertaking the responsibility for satisfactory performance of ……(Name of the equipment/system*).

Dear Sirs,

1. In accordance with the Award of the Contract by …… (Name of the Contractor) to M/s. ……. (Name of the sub-vendor), we, the aforesaid Associate*/Collaborator*/Holding Company*/ Designer*/ Engineering Firm*, (M/s …….) shall be fully responsible for the satisfactory performance of the ……..(Name of the equipment/system*).

2. Further, the manner of achieving the objective set forth in point 1 above shall be as follows For …….. (Name of the equipment/system*):
   (a) We shall be fully responsible for design, engineering, commissioning (as applicable) and extending all necessary support for putting in to satisfactory operation and carrying out the Guarantee Tests (If applicable) for ……..(Name of the equipment/system*) to the satisfaction of the Employer.

   (b) We shall depute technical experts for supervision during inspection, site erection, commissioning and final testing (as and when necessary) of the…….(Name of the equipment/system*).

   (c) We shall participate in Technical Co-ordination meetings (TCMs) from time to time, as and when required by Employer.

   (d) We shall promptly carry out all the corrective measures and shall promptly provide corrected design and shall undertake replacements, rectifications or modifications to the equipment/system* as and when required by Employer in case the equipment/system* fails to demonstrate successful performance as per contract at site.

3. We, the Associate*/Collaborator/Holding company*/Designer*/ Engineering firm* do hereby undertake and confirm that this Letter of Technical Support shall be valid for a period up to the end of defect liability period of the contract.

Signature of the Authorised Representative:……..…
For M/s …….
(Associate*/Collaborator*/Holding company*/ Designer*/ Engineering Firm*)
Name ……
Designation ……..
Date:……
Common Seal of the Company

***: Strike off whichever is not applicable.**

FORM OF DEED OF JOINT UNDERTAKING TO BE PROVIDED FOR INDUCED DRAFT COOLING TOWER AS PER CLAUSE 4.3 OF TECHNICAL SPECIFICATIONS (SECTION -VI PART-A SUB-SECTION-IA)

(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

DEED OF JOINT UNDERTAKING TO BE EXECUTED BY BIDDER/SUB VENDOR AND ITS HOLDING COMPANY/COLLABORATOR/ASSOCIATE FOR SUCCESSFUL PERFORMANCE OF COOLING TOWER MEETING THE REQUIREMENTS STIPULATED IN THE TECHNICAL SPECIFICATION.

The DEED OF JOINT UNDERTAKING executed this ……day of ……Two thousand ……. by M/s …… (BIDDER/SUB VENDOR**)**……. (hereinafter called the BIDDER/SUB VENDOR, which expression shall include its successors, administrators, executors and permitted assigns) AND

The DEED OF JOINT UNDERTAKING executed this ……day of ……Two thousand ……. by M/s …… (**HOLDING COMPANY/COLLABORATOR/ASSOCIATE)** a Company incorporated under ……..having its Registered Office at …… (hereinafter called the **HOLDING COMPANY/COLLABORATOR/ASSOCIATE**, which expression shall include its successors, administrators, executors and permitted assigns) AND

in favour of ……..., having its Registered Office at NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003 INDIA ("Employer" which expression shall include its successors, administrators, executors and assigns).

WHEREAS, the Employer invited Bids for design, engineering, manufacture, supply, transportation to site, construction, installation, testing, commissioning and conductance of guarantee tests for the EPC Package for --------- TPP (hereinafter referred to as "Plant") vide its Bidding Document No. ------, which interalia include Cooling tower(s).

WHERAS M/S ----------(Bidder) has submitted its proposal in response to the aforesaid invitation for Bid by the Employer for EPC package for -----TPP against the employer's bidding documents no. -------- interalia including design, engineering, manufacturing, supply, transportation to site, installation, testing and commissioning (including trial operation and performance and guarantee test) of cooling tower(s).

AND WHEREAS vide
clause 4.3.3 of TECHNICAL SPECIFICATIONS (SECTION-VI, PART-A, SUB-SECTION-IA), it has been specified that bidder/ sub-vendor who has independently constructed RCC cooling towers can also participate alongwith it's Holding company/Collaborator/Associate who in turn meets the requirements of clause 4.3.1 of TECHNICAL SPECIFICATIONS (SECTION-VI, PART-A, SUB-SECTION-IA).

NOW THEREFORE, THIS DEED WITNESSETH AS UNDER:

1. We the bidder/sub vendor and our Holding company/Collaborator/Associate, do hereby declare and undertake that we shall be jointly and severally responsible to the Employer for the successful performance of the Cooling tower(s).

2. In case of any breach of the Contract by the contractor /its sub-vendor, we the Holding company/ Collaborator / Associate do hereby undertake, declare and confirm that we shall be fully responsible for the successful performance of the cooling tower(s) and undertake to carryout all the obligations and responsibilities under this Deed of Joint Undertaking in order to discharge the bidder/sub vendor obligations stipulated under the Contract. Further, if the Employer sustains any loss or damage on account of any breach of the Contract for the cooling tower , we undertake to promptly indemnify and pay such loss/damages caused to the Employer on its written demand without any demur, reservation, Contest or protest in any manner whatsoever. This is without prejudice to any rights of the Employer against the bidder/sub vendor under the Contract and/or guarantees. It shall not be necessary or obligatory for the Employer to first proceed against the bidder/sub vendor before proceeding against the Holding company/ Collaborator / Associate nor any extension of time or any relaxation given by the Employer to the bidder/sub vendor shall prejudice any rights of the Employer under this Deed of Joint Undertaking to proceed against the Holding company/ Collaborator / Associate. The liability of the contractor, his sub-vendor and the Holding company/ Collaborator / Associate shall be limited to an amount equal to 100% of the value of the contract** between the contractor and the sub supplier for the equipments/systems.

3. Without prejudice to the generality of the Undertaking in paragraph 1 above, the manner of achieving the objective set forth in paragraph 1 above shall be as follows:

(a) We, Holding company/ Collaborator / Associate shall ensure that complete design, manufacturing, quality assurance and installation of the cooling towe(s) is carried out inline with drawings and procedures and shall be fully responsible for its compliance so as to ensure satisfactory, reliable, safe and trouble free performance of cooling tower(s) .

Further, we, Holding company/ Collaborator / Associate shall extend our quality surveillance / supervision / quality control to the bidder / sub vendor during Design, engineering, erection, commissioning and performance testing of cooling tower(s).

Further, Holding company/ Collaborator / Associate shall depute their technical experts from time to time to the bidder / sub vendor works / Employer's project site as required by the Employer and agreed to by bidder / sub vendor to facilitate the successful performance of the cooling tower(s) as stipulated in the aforesaid Contract.

Further, Holding company/ Collaborator / Associate shall ensure proper design, manufacture installation, testing and successful performance of the cooling tower under the said contract in accordance with stipulations of Bidding Documents and if necessary, Holding company/ Collaborator / Associate shall advise the bidder/sub vendor suitable modifications of design and implement necessary corrective measures to discharge the obligations under the contract.

(b) In the event the bidder/sub vendor fail to demonstrate that the cooling tower(s) meet the guaranteed parameters and demonstration parameters as specified in the contract, Holding company/ Collaborator / Associate shall promptly carry out all the corrective measures related to engineering services at their own expense and shall promptly provide corrected design to the Employer.

(c) Implementation of the corrected design and all other necessary repairs, replacements, rectification or modifications to the cooling tower(s) and payment of financial liabilities and penalties and fulfillment of all other contractual obligations as provided under the contract shall be the joint and several responsibility of the bidder/sub vendor and Holding company/ Collaborator / Associate.

4. We, the contractor/sub vendor and Holding company/ Collaborator / Associate do hereby undertake and confirm that this Undertaking shall be irrevocable and shall not be revoked till ninety (90) days after the end of the defect liability period of the last equipment covered under the Contract and further stipulate that the Undertaking herein contained shall terminate after ninety (90) days of satisfactory completion of such defect liability period. In case of delay in completion of defect liability period, the validity of this Deed of Joint Undertaking shall be extended by such period of delay. We further agree that this Undertaking shall be without any prejudice to the various liabilities of the Contractor including Contract Performance Security as well as other obligations of the Contractor in terms of the Contract.

5. The Contractor/sub vendor will be fully responsible for the quality of all the equipment/main assemblies/components manufactured at their works or at their Vendors' works or constructed at site, and their repair or replacement, if necessary, for incorporation in the Plant and timely delivery thereof to meet the completion schedule under the Contract.

6. In case of Award, in addition to the Contract Performance Security for the contract, the Holding company/ Collaborator / Associate shall furnish 'as security' an on demand Performance Bank Guarantee in favour of the Employer as per provisions of the bidding documents. The value of such Bank Guarantee shall be equal to **INR 40 Million (Indian Rupees Forty Million only)** and it shall be guarantee towards the faithful performance /compliance of this Deed of Joint Undertaking in accordance with the terms and conditions specified herein. The bank guarantee shall be unconditional, irrevocable and valid till ninety (90) days beyond the end of defect liability period of the last equipment covered under the Contract. In case of delay in completion of the defect liability period, the validity of this Bank Guarantee shall be extended by the period of such delay. The guarantee amount shall be promptly paid to the Employer on demand without any demur, reservation, protest or contest.

7. Any dispute that may arise in connection with this Deed of Joint Undertaking shall be settled as per arbitration procedure/rules mentioned in the Contract Documents. This Deed of Joint Undertaking shall be construed and interpreted in accordance with the Laws of India and the Courts of Delhi shall have exclusive jurisdiction.

8. We, Holding company/ Collaborator / Associate and contractor /sub vendor agree that this Undertaking shall form an integral part of the Contracts from the date of signing of this Deed of Joint Undertaking. We further agree that this Undertaking shall continue to be enforceable till its validity.

9. That this Deed of Joint Undertaking shall be operative from the effective date of signing of this Deed of Joint Undertaking.

IN WITNESS WHEREOF, Holding company/ Collaborator / Associate and contractor / sub vendor through their authorised representatives, have executed these presents and affixed common seal of their respective companies, on the day, month and year first mentioned above.

1. WITNESS For M/s .....

(Holding company/ Collaborator / Associate)

..... (Signature of the Authorised
(Signature Name)
Representative).....

.....
Name.....
(Official Address)

Designation.....

Common Seal of the

Company.....

1. WITNESS ForM/s .....

(*sub vendor)

..... (Signature of the Authorised
(Signature Name)
Representative).....

.....
Name.....
(Official Address)

Designation.....

Common Seal of the

Company.....

1. WITNESS For M/s .....

(Bidder/Contractor)

..... (Signature of the Authorised
(Signature Name)
Representative).....

.....
Name.....
(Official Address)

Designation.....

Common Seal of the

Company.....

1. WITNESS

For M/s .....

(JV company/Subsidiary company)

.....
(Signature Name)
Representative).....

(Signature of the Authorised

.....
Name.....
(Official Address)

Designation.....

Common Seal of the

Company.....

Note :

1) Power of Attorney of the executants of this DJU is to be furnished.

2) * Strike out, whichever is not applicable.

3) ** Copy of priced purchase order for the equipment shall be furnished by Bidder.

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 07 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section /Part	Sub-Section	Clause No.	Page No.		
SG1-43	VI/B	A-01	1.05.02 - e	7 OF 101	(v) **Design Metal Temperature** Upto & above 610 degree Celsius **Material** Austenitic stainless steel, SA-213 UNS S30432 Shot Peened, TP347H FG or approved equivalent.	(v) **Design Metal Temperature** Upto & above 610 degree Celsius **Material** Austenitic stainless steel, SA-213 UNS S30432 Shot Peened, ~~TP347H FG~~ or approved equivalent.
SG1-44	VI/B	A-01	1.05.22.01	39 OF 101	AMENDMENT: SG1-14 CHIMNEY …..For Borosilicate lining, top portion of the flue can shall be fitted with stop bar of 8 mm thick capping of Titanium / C-276 sheet to avoid any damage in between flue can and borosilicate lining. The minimum length of the capping inside the chimney shall be at least equal to 150mm diameter of flue liner. ….. and external surface of chimney flue liner projecting over the chimney roof shall be wrapped with 2 mm thick Titanium / C-276 sheet over insulation…	For Borosilicate lining, top portion of the flue can shall be fitted with stop bar of 8 mm thick capping of Titanium / C-276 sheet to avoid any damage in between flue can and borosilicate lining. The minimum length of the capping inside the chimney shall be at least equal to 150mm ~~diameter of flue liner~~. ….. and external surface of chimney flue liner projecting over the chimney roof shall be wrapped with 2 mm thick Titanium/ C-276 sheet **(over insulation for titanium/C-276 lining and without insulation for borosilicate lining)….**
SG1-45	VI/A	IV	1.03.03-VII	31 OF 76	Waste Water The Contractor guarantees that the maximum purge flow rate to waste water treatment system from FGD system for 2x800 MW units shall be less than $20m^3/s$ averaged over a 24 hour period for a the range of specified coal(s).	Waste Water The Contractor guarantees that the maximum purge flow rate to waste water treatment system from FGD system for 2x800 MW units shall be less than **$20m^3/hr$** averaged over a 24 hour period for ~~a~~ the range of specified coal(s).
SG1-46	VI/B	A-05	5.01.00-A	7 OF 26	(iii) The slurry recirculation pumps shall have a minimum margin of 10% of flow and head, over the actual requirement for meeting the guarantee and design point conditions…….	(iii) The slurry recirculation pumps shall have a minimum margin of 10% ~~of~~ **on** flow and **10% on frictional** head, over the actual requirement for meeting the guarantee and design point conditions…….

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 07 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
MH-52	VI/PART-A	**IA**	4.19.1 (d)	12 of 36	Complete high concentration ash slurry disposal system for handling not less than 40 tons of ash per hour for **pulverised coal fired power stations** which includes, among others, positive displacement ash slurry pumps & piping system with associated controls.	Complete high concentration ash slurry disposal system for handling not less than 40 tons of ash per hour for **coal fired power stations** which includes, among others, positive displacement ash slurry pumps & piping system with associated controls.
MH-53	Amendment No MH-32				Design and Engineering Agency for High Concentration Slurry Disposal System: Design agency/agencies for high concentration slurry disposal system should be either an high concentration slurry disposal system supplier meeting the qualification of **clause 4.19.1(d),** for the offered system or consultancy organization who has designed and engineered similar system(s) for handling not less than 40 tonnes of ash per hour, for **pulverized** coal fired power station(s) and the system(s) should have been in successful operation in at least one (1) plant for at least two (2) years prior to the date of Techno-Commercial bid opening.	Design and Engineering Agency for High Concentration Slurry Disposal System: Design agency/agencies for high concentration slurry disposal system should be either an high concentration slurry disposal system supplier meeting the qualification of **clause 4.19.1(d),** for the offered system or consultancy organization who has designed and engineered similar system(s) for handling not less than 40 tonnes of ash per hour, for coal fired power station(s) and the system(s) should have been in successful operation in at least one (1) plant for at least two (2) years prior to the date of Techno-Commercial bid opening.
MH-54	Amendment No MH-44			**247 OF 401**	Attachment 3K for Ash Handling Plant	Revised Attachment 3K for Ash Handling Plant

EPC PACKAGE FOR
LARA STPP STAGE-II (2X800 MW)
BIDDING DOCUMENT NO. CS-9587-001R-2

(For Qualification as per Clause No. 4.19 of Sub-Section-IA, Part-A of Section-VI)

Bidder's Name and Address :

To
Contract Services ,
NTPC Limited.
NOIDA-201301

1.0 We are qualified under clause no. 4.19.1 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents.

2.0 We are a supplier of ash handling system(s) and have executed ash handling system(s) involving design, engineering, manufacturing/got manufactured, supply, erection /supervised erection and commissioning/ supervised commissioning for the following systems:

We also confirm that the activity of design and engineering for the systems described 2.1(a), 2.1(b) & 2.1(c) of this Attachment-3K have been carried out by us & not through external design agency/agencies.

2.1 (a) Bottom Ash Handling System (Strike out whichever is not applicable)

(i) Wet Bottom Ash handling system comprising a jet pump system in conjunction with water impounded Bottom Ash Hopper designed for the conveying capacity of 50 tonnes/hour (dry ash basis) or more per jet pump for pulverised coal fired boilers.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity per Jet pump (TPH) referred by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder per Jet Pump (TPH)	Name of Manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

---

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. jet pump system as is being offered by us for the present plant
(b) Clients certificate enclosed in support of
(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

OR

2.1 (a) (i) Wet Bottom Ash Handling system comprising a submerged scrapper chain conveyor system designed for the conveying capacity of 20 tonnes/hour (dry ash basis) or more per conveyor, for pulverised coal fired boilers:

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity per Scrapper conveyor (TPH) referred by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder per Jet Pump (TPH)	Name of Manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. submerged scrapper chain conveyor system as is being offered by us for the present plant.
(b) Clients certificate enclosed in support of
(i) Details about above (Yes/No.)
(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

2.1(b) **Pneumatic Fly Ash Handling System(Strike out whichever is not applicable)**

(i) Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by pressure conveying system designed for 30 TPH or more conveying capacity.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder (TPH)	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. pressure system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above Yes/No.

(ii) Successful operation of above plants for at least two (2) years. Yes/No.

OR

2.1(b)(ii) Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by vacuum conveying system designed for 30 TPH or more conveying capacity per vacuum extractor.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder (TPH)	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. vacuum system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years (Yes/No.)

And

2.1(c) Pneumatic Fly Ash Transportation System for transporting Fly Ash from a pulverized Coal and Boiler unit having capacity of not less than 20 TPH for a conveying distance of not less than 500 mtr. including fly ash storage silo.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design Fly Ash transportation capacity (TPH) and conveying distance specified by client (Documentary evidence attached)	Offered Ash transportation capacity and conveying distance	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Capacity TPH	Conveying distance Mtr.	Capacity TPH	Conveying distance Mtr.

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

2.1 (d) Complete high concentration ash slurry disposal system for handling not less than 40 tonnes of ash per hour for coal fired power stations which includes, among others, ash slurry pumps & piping system with associated controls.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Total quantity of ash handled (TPH)	Scope of work alongwith scheme (enclosed with bid)	Name of manufacturer (Experience list enclosed)	Date of commissioning and No of years in successful operation	remarks

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

3.0 We are qualified under clause 4.19.2 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents.

We have executed Ash Handling Plants for pulverised coal fired boiler units generating not less than 40 TPH of ash per Boiler which includes bottom ash handling system comprising either a jet pump system in conjunction with water impounded Bottom Ash Hopper or submerged scrapper chain conveyor system involving design and engineering either through bidder/its sub vendor or through design agency/agencies, manufacture/got manufactured, supply, erection/supervised erection and commissioning/ supervised commissioning for the following plants (Refer clause no. 4.19.2(a) of Sub-Section-IA, Part-A, Section-VI of bidding documents).
The details of type and minimum equipment rating of such equipment are given below :

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Total Ash generation per boiler (T/Hr)	Total ash handling capacity (bottom+fly ash) (Tonnes/hour) per boiler	Type of Bottom Ash Handling System Supplied	Name of design and Engineering agency (Experience) list enclosed)	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : Client's certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

We confirm that we* (or our proposed sub-vendor) have valid collaboration/association agreement for either the total requirement or the balance part under clause 4.19.1 (a), which we/ our sub vendor itself is not able to meet, with M/s ..... The details of type and minimum equipment rating of such equipment are given below :

3.1 (a) Bottom Ash Handling System (Strike out whichever is not applicable)

(i) Wet Bottom Ash handling system comprising a jet pump system in conjunction with water impounded Bottom Ash Hopper designed for the conveying capacity of 50 tonnes/hour (dry ash basis) or more per jet pump for pulverised coal fired boilers.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity per Jet pump (TPH) referred by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder per Jet Pump (TPH)	Name of Manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

---

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. jet pump system as is being offered by us for the present plant

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

OR

3.1 (a) (ii) Wet Bottom Ash Handling system comprising a submerged scrapper chain conveyor system designed for the conveying capacity of 20 tonnes/hour (dry ash basis) or more per conveyor, for pulverised coal fired boilers:

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity per Scrapper conveyor (TPH) referred by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder per Jet Pump (TPH)	Name of Manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. submerged scrapper chain conveyor system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

3.2 We have executed ash handling plant for pulverised coal fired boiler unit, generating not less than 40 TPH of ash per Boiler which includes fly ash handling system for conveying fly ash from ESPs in dry form (involving pneumatic conveying systems of vacuum or pressure type) involving design and engineering either through bidder/it's sub vendor or through design agency/agencies, manufacture/got manufactured, supply, erection/supervised erection, and commissioning/ supervised commissioning for the following plants (Refer clause no. 4.19.2(b) of sub-section-IA, Part-A, Section-VI of bidding documents).
The details of type and minimum equipment rating of such equipment are given below :

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Total Ash generation per boiler (T/Hr)	Total ash handling capacity (bottom+fly ash) (Tonnes/hour) per boiler	Type of Fly ash Handling System Supplied	Name of design and (Experience agency (Experience) list enclosed)	Name of manufacturer and No. of list enclosed)	Date of Commissioning years in successful operation	Remarks

Note : Client's certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

We confirm that we* (or our proposed sub-vendor) have valid collaboration agreement for either the total requirement or the balance part under clause 4.19.1 (b), which we/ our sub vendor itself is not able to meet, with M/s ..... The details of type and minimum equipment rating of such equipment are given below :

3.2 a(i) Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by pressure conveying system designed for 30 TPH or more conveying capacity.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offer ash conveying capacity by bidder (TPH)	Name of manufacture (experience list enclosed)	Date of commissioning and No. of years in successful operation	Name of design and engineering agency (experience list enclosed)	Remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. pressure system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above Yes/No.

(ii) Successful operation of above plants for at least two (2) years. Yes/No.

OR

3.2 a(ii) Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by vacuum conveying system designed for 30 TPH or more conveying capacity per vacuum extractor.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offer ash conveying capacity by bidder (TPH)	Name of manufacture (experience list enclosed)	Date of commissioning and No. of years in successful operation	Name of design and engineering agency (experience list enclosed)	remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. vacuum system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years (Yes/No.)

And

We confirm that we* (or our proposed sub-vendor) have valid collaboration/association agreement for either the total requirement or the balance part under clause 4.19.1 (c), which we/ our sub vendor itself is not able to meet, with M/s ..... The details of type and minimum equipment rating of such equipment are given below :

3.2 b Pneumatic Fly Ash Transportation System for transporting Fly Ash from a pulverized Coal and Boiler unit having capacity of not less than 20 TPH for a conveying distance of not less than 500 mtr. including fly ash storage silo.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Design transportation capacity (TPH) specified by client (Documentary evidence attached)	Offer ash transportation capacity by bidder (TPH)	Name of manufacture (experience list enclosed)	Date of commissioning and No. of years in successful operation	Name of design and engineering agency (experience list enclosed)	remarks

---

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

3.3 We confirm that we* (or our proposed sub-vendor) have valid collaboration/association agreement for either the total requirement or the balance part under clause 4.19.1 (d), which we/ our sub vendor itself is not able to meet, with M/s ..... The details of type and minimum equipment rating of such equipment are given below :

Complete high concentration ash slurry disposal system for handling not less than 40 tonnes of ash per hour for coal fired power stations which includes, among others, ash slurry pumps & piping system with
associated controls.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Total quantity of ash handled (TPH)	Scope of work alongwith scheme (enclosed with bid)	Name of manufacturer (Experience list enclosed)	Date of commissioning and No of years in successful operation	remarks

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

4.0 We are qualified under clause 4.19.4 of Sub-Section-IA, Part-A, Section-VI of Bidding Documents.

We confirm that we* /our proposed sub-vendor is an EPC organization in Collaboration with QAHPM (Qualified Ash Handling Plant Manufacturer):

a. The Bidder/Bidder's sub-vendor is an Engineering, Procurement and Construction (EPC) organization and have executed, in the last 10 years, industrial projects on EPC basis (with or without civil works) in the area of Power, Steel, Oil & Gas, Petro-chemical, Fertilizer, Flue Gas Desulphurisation and/or any other process industry with the total value of such projects being INR 4,000 million or more. At least one of such projects have a contract value of INR 1,600 million or more. These projects shall be in successful operation for a period of not less than one (1) year.

i. Name of EPC Sub-Vendor:
ii. Area of Project:
iii. Total value of Project:
iv. Total value of one such project:
v. No of years of successful operation:

b. The Bidder/Bidder's sub-vendor have a valid ongoing collaboration and technology transfer/licensing agreement with a QAHPM meeting requirements of clause 4.19.1 on its own, valid minimum up to the end of the defect liability period of the contract. In such a case, Bidder/Bidder's sub-vendor shall either source the AHP System from such manufacturer or manufacture/get manufactured the AHP System as per the design and manufacturing drawings released by such QAHPM.
Name of QAHPM (Qualified Ash Handling Plant Manufacturer):
Details of QAHPM (Qualified Ash Handling Plant Manufacturer):

i. Bottom Ash Handling System (Strike out whichever is not applicable)

Wet Bottom Ash handling system comprising a jet pump system in conjunction with water impounded Bottom Ash Hopper designed for the conveying capacity of 50 tonnes/hour (dry ash basis) or more per jet pump for pulverised coal fired boilers.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in	Design conveying capacity per	Offered Ash conveying capacity by	Name of Manufacturer	Date of Commissioning and No. of years in successful operation	Remarks

		which system installed	Jet pump (TPH) referred by client (Documentary evidence attached)	bidder per Jet Pump (TPH)	(Experience list enclosed)		

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. jet pump system as is being offered by us for the present plant

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

OR

Wet Bottom Ash Handling system comprising a submerged scrapper chain conveyor system designed for the conveying capacity of 20 tonnes/hour (dry ash basis) or more per conveyor, for pulverised coal fired boilers:

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity per Scrapper conveyor (TPH) referred by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder per Jet Pump (TPH)	Name of Manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Bottom Ash Handling System is of the same type i.e. submerged scrapper chain conveyor system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

AND

(ii) **Pneumatic Fly Ash Handling System(Strike out whichever is not applicable)**

Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by pressure conveying system designed for 30 TPH or more conveying capacity.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder (TPH)	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. pressure system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above Yes/No.

(ii) Successful operation of above plants for at least two (2) years. Yes/No.

OR

Pneumatic Fly ash handling system for conveying fly ash from ESPs of a single pulverised coal fired boiler unit, by vacuum conveying system designed for 30 TPH or more conveying capacity per vacuum extractor.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design conveying capacity (TPH) specified by client (Documentary evidence attached)	Offered Ash conveying capacity by bidder (TPH)	Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks

Note : (a) The reference Pneumatic Fly Ash Handling Systems are of the same type i.e. vacuum system as is being offered by us for the present plant.

(b) Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years (Yes/No.)

And

Pneumatic Fly Ash Transportation System for transporting Fly Ash from a pulverized Coal and Boiler unit having capacity of not less than 20 TPH for a conveying distance of not less than 500 mtr. including fly ash storage silo.

Sl. No.	Name of Plant with location	No. of Units with MW Capacity in which system installed	Design Fly Ash transportation capacity (TPH) and conveying distance specified by client (Documentary evidence attached)		Offered Ash transportation capacity and conveying distance		Name of manufacturer (Experience list enclosed)	Date of Commissioning and No. of years in successful operation	Remarks
			Capacity TPH	Conveying distance Mtr.	Capacity TPH	Conveying distance Mtr.			

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

AND

iii) Complete high concentration ash slurry disposal system for handling not less than 40 tonnes of ash per hour for coal fired power stations which includes, among others, ash slurry pumps & piping system with associated controls.

S.No	Name of plant with location	No of units with MW capacity in which system installed	Total quantity of ash handled (TPH)	Scope of work alongwith scheme (enclosed with bid)	Name of manufacturer (Experience list enclosed)	Date of commissioning and No of years in successful operation	remarks

Note : Clients certificate enclosed in support of

(i) Details about above (Yes/No.)

(ii) Successful operation of above plant(s) for at least two (2) years. (Yes/No.)

c. Bidder confirms to furnish letter of support from Collaborator/ Licensor /Technology provider for successful performance of the AHP system valid up to the end of defect liability period of the contract as per the format enclosed in the bidding document, at the time of placement of order on the approved sub-vendor.

Bidder confirms that the Technology transfer/Licensing agreement between the Bidder, Bidder's sub-vendor & QAHPM shall cover transfer/licensing of technological knowhow for AHP system in the form of transfer/licensing of design

dossier, design software's, drawings and documentation, quality system manuals and imparting relevant personnel training to the Bidder/Bidder's sub-vendor.

LETTER OF SUPPORT FOR SATISFACTORY PERFORMANCE OF …… (Name of System) FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2X800 MW) EPC PACKAGE

TO:

[EMPLOYERS NAME & ADDRESS]

Sub: Letter of Support submitted From …….. (name of the Associate /Collaborator) undertaking the responsibility for satisfactory performance of …..(Name of System)

Dear Sirs,

1. In accordance with the Award of the Contract by …… (Name of System) to M/s. ……. (Name of the sub-vendor), we the aforesaid Associate /Collaborator) shall be fully responsible for the satisfactory performance of the …….. (System name).

2. Further, the manner of achieving the objective set forth in point 1 above shall be as follows:
   For …….. (System name):

(A) We shall provide and shall be fully responsible for design, engineering & commissioning, manufacturing and assembly drawings of…….. (System name). …….. (System name) shall be manufactured and supplied as per above design provided by us and the drawings approved by Employer.

(B) We shall depute technical experts to Bidder's/sub-vendor's works for supervision during manufacturing, assembly, erection, commissioning and final testing (as and when necessary) of the……. (System name).

(C) We shall promptly carry out all the corrective measures and shall promptly provide corrected design and shall undertake replacements, rectifications or modifications to the equipment as required in case the equipment fails to demonstrate successful performance as per contract at site.

(D) We shall participate in Technical Co-ordination meetings (TCMs) from time to time, as and when required by Employer

3. We, the Associate /Collaborator* do hereby undertake and confirm that this Letter of Support shall be valid for a period of seven (7) years or up to the end of defect liability period of the contract, whichever is later.

.

Signature of the Authorised Representative:……
For M/s ……

(Associate*/*Collaborator*)

Name ……
Designation ……

Date:……

Common Seal of the Company

*: Strike off whichever is not applicable.

For Qualification as per Clause No. 4.19.3 of Sub-Section-IA, Part-A of Section-VI

In conformity with the requirements specified under clause 4.19.3(a) Sub section-IA, Section -VI, Part-A of Horizontal centrifugal pump module, we have offered Ash Slurry pumps manufactured by M/s ..... who have in the past supplied and installed ash slurry pumps for similar duty application and have at least two (2) nos. pumps of the same models that are being offered having capacity not less than 1000 cubic meters per hour at each of two (2) different stations which are in successful operation for at least two (2) years prior to the date of Techno-Commercial bid opening. In support of the above, we furnish below the following details.

i) Name of Ash Slurry pumps manufacturer :

ii) The above pump manufacturer have supplied and installed at least two (2) nos. Ash slurry pumps of parameters as specified in Clause 4.19.3(a), sub section-IA, Section-VI, Part-A — Yes / No

iii) Details of the Power Plants at which Ash Slurry Pumps of the above make as specified in Clause 4.19.3(a), sub section -IA, Section-VI, Part-A

a) Name of the Power Plant :

b) Pump Model :

c) Size of Pumps :

d) Number of pumps :

e) Capacity of the pump (m3 / hr.) :

f) Total dynamic Head of the pump (mwc) :

g) Concentration (by wt.) of the slurry and the

maximum particle size handled :

h) Date of commissioning of ash handling system :

i) Whether the pumps are in successful operation prior to Techno-Commercial bid ` opening(Attach certificate from Client)
:

In conformity with the requirements specified under clause 4.19.3(b) Sub section-IA, Section -VI, Part-A of positive displacement pumps for high concentration slurry disposal System, we have offered high concentration slurry disposal pumps manufactured by M/s ..... who have in the past supplied and installed positive displacement pumps for high concentration slurry disposal System for similar duty applications and have at least two (2) nos. pumps of same models that are being offered having capacity not less than 150 m3/hr which should have been in successful operation for at least two (2) years prior to the date of Techno-Commercial bid opening. In support of the above, we furnish below the following details.

i) Name of high concentration slurry disposal pumps manufacturer :

ii) The above pump manufacturer have supplied and installed at least two (2) nos high concentration slurry disposal pumps of parameters as specified in Clause 4.19.3(b), sub section-IA, Section-VI, Part-A — Yes / No

iii) Details of the Power Plants at which high concentration slurry disposal Pumps of the above make as specified in Clause 4.19.3(b), sub section -IA, Section-VI, Part-A

a) Name of the Power Plant :

b) Pump Model :

c) Size of Pumps :

d) Number of pumps :

e) Capacity of the pump (m3 / hr.) :

f) Total dynamic Head of the pump (mwc) :

g) Concentration (by wt.) of the slurry and the

maximum particle size handled :

h) Date of commissioning of ash handling system :

i) Whether the pumps are in successful operation prior to Techno-Commercial bid ` opening(Attach certificate from Client)

LETTER OF SUPPORT FOR SATISFACTORY PERFORMANCE OF …… (Name of Equipment) FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2X800 MW) EPC PACKAGE

TO:

[EMPLOYERS NAME & ADDRESS]

Sub: Letter of Support submitted From …….. (name of the Associate /Collaborator*/Technology provider*/Licensor*/Qualified equipment manufacturer*) undertaking the responsibility for satisfactory performance of …..(name of the equipment).

Dear Sirs,

4. In accordance with the Award of the Contract by …… (Name of the Contractor) to M/s. ……. (Name of the sub-vendor), we the aforesaid Associate /Collaborator*/Technology provider*/Licensor*/Qualified equipment manufacturer*, (M/s …….) shall be fully responsible for the satisfactory performance of the …….. (Equipment name).

5. Further, the manner of achieving the objective set forth in point 1 above shall be as follows:
   For …….. (Equipment name):

(E) We shall provide and shall be fully responsible for design,engineering & commissioning, manufacturing and assembly drawings of…….. (Equipment name). …….. (Equipment name) shall be manufactured and supplied as per above design provided by us and the drawings approved by Employer.

(F) We shall depute technical experts to Bidder's/sub-vendor's works for supervision during manufacturing, assembly, erection, commissioning and final testing (as and when necessary) of the……. (Equipment name).

(G) We shall promptly carry out all the corrective measures and shall promptly provide corrected design and shall undertake replacements, rectifications or modifications to the equipment as required in case the equipment fails to demonstrate successful performance as per contract at site.

(H) We shall participate in Technical Co-ordination meetings (TCMs) from time to time, as and when required by Employer

6. We, the Associate /Collaborator*/Technology provider*/Licensor*/Qualified equipment manufacturer* do hereby undertake and confirm that this Letter of Support shall be valid for a period of seven (7) years or up to the end of defect liability period of the contract, whichever is later.

.

Signature of the Authorised Representative:……
For M/s ……

(Associate*/*Collaborator/*Technology provider/*Licensor/ Qualified equipment manufacturer*)

Name ……
Designation …….

Date:……

Common Seal of the Company

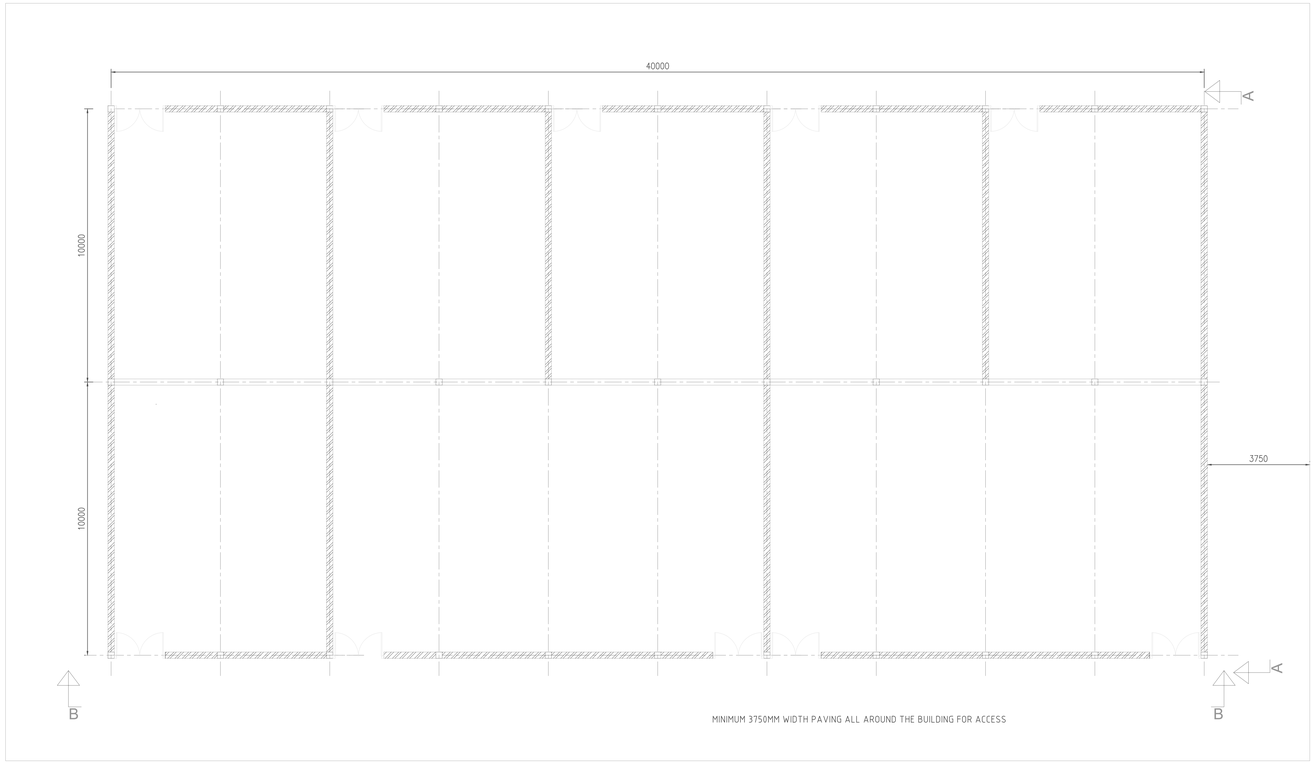
*: Strike off whichever is not applicable.

COLLABORATOR'S/LICENSOR/ASSOCIATED EXPERIENCE FOR ASH HANDLING SYSTEM

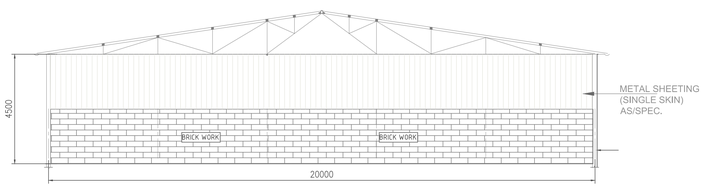
	1	2	3	4
Name and address of the collaborator/licensor/associate				
System for which collaboration/licensing/association made				

M/s ……..(Our collaborator/licensor/associate) are a supplier of ash handling systems having executed ash handling systems involving design, engineering, manufacture/got manufcatured, supply, erection/supervision of erection and commissioning/supervision of commissioning for the following systems. We also confirm that the activity of design and engineering for the systems described in this Attachment- 3K have been carried out by the collaborator/licensor/associate of the relevant system, himself and through external design agency/agencies.

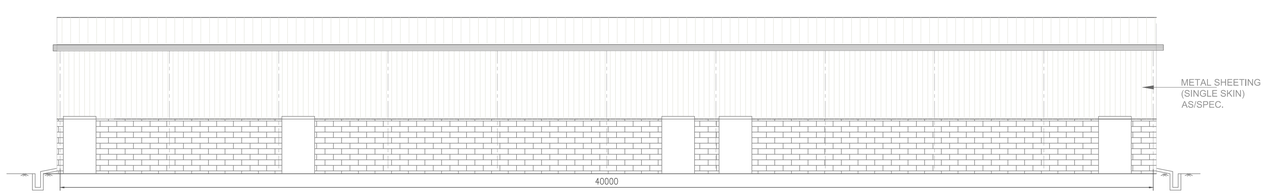
REV. NO.	DRG. NO.



MINIMUM 3750MM WIDTH PAVING ALL AROUND THE BUILDING FOR ACCESS



ELEVATION A–A



ELEVATION B–B

ALL DIMENSIONS IN MM

REV.NO	DESCRIPTION	DRAWN	DESIGN	CHKD.	MECH (L/O)	MECH (WS)	ELEC.	C&I	STR.	APPD.	DATE
A	RELEASED FOR TENDER PURPOSE										

CLEARED BY

एन टी पी सी लिमिटेड
NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)
(ENGINEERING DIVISION)

PROJECT: LARA SUPER THERMAL POWER PROJECT
STAGE-II (2X800 MW)

TITLE: NON-BIODEGRADABLE WASTE STORAGE SHED
FLOOR PLAN & ELEVATIONS

SIZE	SCALE	DRG. NO.	REV. NO.
A1		9587-999-POC-A-011	A