

## ALL INDIA INSTITUTE OF MEDICAL SCIENCES (AIIMS)

Date:06.02.2017

### AMENDMENT No. – I

**Project Name:** Tender for “Electrical Works for National Cancer Institute (NCI) Jhajjar, Haryana”

**Tender No.** HSCC/AIIMS/ NCI\_Jhajjar/2017; dated: 10.01.2017

(i) The Last date of submission & opening of bids has been extended as follows:

**Last date to fill/upload the tender :** upto 15:00 hrs. on 15.02.2017

**through e-Tendering.**

**Date of Opening of bids :** on 15.02.2017 at 15:30 hrs.

#### Reply to Pre Bid Queries raised by bidders during pre -bid meeting held on 27.01.2017 at HSCC, Head Office, Noida

Sl.No	Ref.	Page no.	Clause No	Tender Description	Bidders Queries	Reply
1	GCC & SCC	15 & 16	GCC 1A & SCC 31 €	Recovery of security deposit / Retention	We propose to submit at the start of project a Bank Guarantee of 5% of contract value valid till DLP of 12 months. Hence no retention shall be deducted from our bills.	Tender condition shall prevail.
2	GCC	17	2	Copmensation against delay	We request you that aggregate liability of contractor shall be limited to 5% Of contract value.	Tender condition shall prevail.
3	SCC	52	24	Terms of Payment	We request you to kindly approve below mentioned payment terms:	Tender condition shall prevail.
4					<p><b>Supply:</b> 75% of BOQ rate on receipt of equipment against receipt of complete material at site &amp; test certificates.</p> <p><b>Erection:</b> 15% of BOQ rate on erection and installation of equipment.</p> <p><b>Testing &amp; commissioning:</b> 5% after successful completion of all works including all testing, commissioning &amp; taking over.</p> <p><b>Taking over:</b> 5% after taking over of all works.</p>	
5	General	-	-		Please provide bank details of the beneficiary to prepare the EMD.	HSCC (India) Limited, Name of Branch - Indian Overseas Bank, Kribhco Branch, Noida IFSC Code - IOBA0001725 Bank A/C No. - 172502000000151 PAN No. - AAACH0086N
6	General	-	-	C-Form	C-Form will be provided or not. Please confirm.	C-form will not be provided by Client/HSCC
7	General	-	Solar system	Excise duty exemption certificate	we have considered EDEC benefit from MNRE. Document support will be needed for same. Kindly confirm.	If applicable, necessary documentry support shall be provided by Client/HSCC

Sl.No	Ref.	Page no.	Clause No	Tender Description	Bidders Queries	Reply
8	Tech specs	E-17	Solar System	Data monitoring	As per specs SCADA Required and as per BOQ Data logger required while SCADA is not required for such a small Project. We will however provide a DATA LOGGER which would be compatible to show the requisite Data over the Cloud (Online ie. Remote Monitoring- Internet in Client scope) or else through LAN/RS485 Cable connected to a computer.	as per BOQ
9	BOQ	E-12	Solar System	Solar photovoltaic power generation	Please confirm the capacity of Project whether it is 100 KW or 60 KW or 50 KW.Also elaborate the BOQ description in detail.	As per BOQ
10	General	-	Solar System	-	O&M will not be in our scope.Please confirm.	Maintenance during Defect Liability Period will be in the scope
11	General	-	Solar System	-	Kindly confirm that a shadow free area of 12 sq. mm. per KW towards south will be provided.	suitable shadow free area will be provided.
12	General	-	Solar System	-	Net metering will not in our scope.Please confirm.	As per BOQ
13	General	-	Solar System	-	Preliminary site questionnaire attached to provide the detail to quote solar system.	requisite details will be provided to the successful bidder.
14	Make list	-	Solar System	Module / Inverter	we have considered WAAREE and Goldy green make for modules due to unavailability with the given makes as CEL,BHEL and BEL. We have considered Delta and Fronious L for inverter.Please confirm.	As per approved make list
15	BOQ	2.01	Outdoor Lighting	SITC of 9.0 Meter external swaged steel tubular pole	Please provide the foundation detail and size.	As per IS/CPWD specifications.
16	BOQ	2.05	High mast Light	SITC of 20m and 16m High mast pole	Please provide the foundation detail and size.	As per IS/CPWD specifications.
17			Volume I - Page 38, Clause (vi)	Operation & Maintenance Period - During Defect Liability Period, i.e. 12 months	Please clarify the manpower details required and the number of shifts for operation to be considered. Please also confirm whether this will be considered under Bid Evaluation or not.	Maintenance work of entire systems will be carried out by the contractor during DLP.
18			Vol I - Page no 27- Point vi - NIT & PQ	The Defects Liability Period shall be up to 12 months from the date of Completion of works	We request you to accept the "Defect liability period as 12 months from the date of commissioning or 15 months from the date of delivery, which ever ends earlier."	as per tender
19			Vol I - Page 30 - Clause 5	Approvals Required - The Contractor shall obtain all necessary approvals Electric Supply and inspectorate. Agencies concerned, such as, but not limited to, Police and Security Agencies, in accordance prevailing rules, Building Bye-Laws etc., as the case may be with related to/ required for Construction/Completion. All expenditure on this account will be borne by the contractor.	Please confirm whether CEIG Approval is in the scope of the contractor or not? Or only Technical Documentation needs to be furnished for the same.	approval to the extent of electrical work will be in the scope of the contractor.
21			Vol I - Page 48	Undertaking - Form H	Please confirm for which Items, we need to furnish this Undertaking.	Lift work
22			Vol I - Page 55	Form T-4 - Performance Report of Works	Please confirm whether we can furnish the Completion Certificate as per standard format of Client, in place of the given format.	as per tender
23			Vol II GCC - Clause 25	SETTLEMENT OF DISPUTES & ARBITRATION	All disputes to be resolved by one arbitrator from each side (Client & Contractor) and third selected by both the parties.	as per tender
24			Volume II GCC - Clause 37	LEVY/TAXES PAYABLE BY CONTRACTOR	Please confirm that Service Tax to be excluded from our Rates to be quoted and it shall be re-imbursed to us on documentary proof.	Ref. Clause no.2.3.7 of Vol.I (NIT/PQ) & Cl.No. 37 of Vol.-II (GCC).

Sl.No	Ref.	Page no.	Clause No	Tender Description	Bidders Queries	Reply
25			Volume II GCC - Clause 37	LEVY/TAXES PAYABLE BY CONTRACTOR	Please confirm whether Labour Cess to be included in our rates or not.	Ref. Clause no.2.3.7 of Vol.I (NIT/PQ)
26			Volume II - GCC Clause 2 - Page 17 of 122	Compensation for Delay	We request you to accept the Compensation of delay shall be 1.5% per month subject to maximum of 5% of the contract value.	Tender condition shall prevail.
27			Vol II GCC - Clause 10 C, Page 34 of 122 & Clause 38, Page 70 of 122	Variation in Taxes and Duties and Imposition of New Taxes	The statutory variation in prevailing taxes & duties, along with new levy or imposition of GST due change in govt. rules and regulation during the currency of the project, will be re-imbursed against the documentary evidences.	Ref. Cl. No. 38 of Vol.-II (GCC).
28			Vol III SCC - Clause 24 - P 52	Terms of Payment (Only for items of major electrical equipments) a. 70% of BOQ rate on receipt of equipment against receipt of complete material at site & test certificates. b. 15% of BOQ rate on erection and installation of equipment. c. 10% after successful completion of all works including all testing, commissioning & taking over. d 5% after taking over of all works.	Please specify Items covered under "Major Electrical Equipments" to be paid for Terms of Payment.	Major Electrical Equipments shall be read as Electrical Equipments.
30			Vol III SCC - Clause 42.2.4	The Contractor shall also make his own arrangements for power supply at Site for construction, testing & commissioning of all services and general use at his own cost.	We request you to provide Power for Testing & Commissioning free of cost to the contractor. We understand all services means pertaining to his scope of work only.	as per tender
33		BOQ-E 12 R0	4.01	Building management system	The BMS I/O summary is not available in the tender document, Request to furnish for the same.	I/o summary enclosed at <b>Annexure- I</b>
				This software will have atleast 25000 (both hardware and software points) points expandable upto 50000 points.	Wether we need 25000 point. The software is customized and come as per actual job requirement with 15-20% spare points, Kindly clarify/confirm.	Software will have at least 25000 both hardware and software points. Spare etc. will be as per tender.
				iii) Software module for Fire alarm integration- BACNet integration of fire alarm integration- 7000 points.	Wether we need 7000 point of integration of Fire Alarm system. The software is customized and come as per actual Qty of Detectors & devices of Fire alarm system, Request to furnish the Qty of Detectors & Devices, Kindly clarify/confirm.	these 7000 points are part of 25000 points mentioned in the software description.
34		BOQ-E 14 R0	F	Field Devices		
			1	Supply, Installation & Commissioning of NTC10K type Duct temp Sensor for Air Temperature	Can we have considered PT 1000/LG-NI Duct temp sensor inplace of NTC 10K, Kindly clarify/confirm.	as per Tender
			7	Supply, Installation & Commissioning of Ultrasonic Flow Meter	Request to furnish the dia of Line/ Pipe size in which the flow meter will be installed.	300 mm dia may be considered.
			i	Supply, installation, testing and commissioning of 4 port, L2, LAN switches for networking of DDCs, soft integrators and other third part devices communication over IP-Ethernet.	The Qty asked in BOQ LOT. Request to furnish the BMS layout/ BMS network architecture. enable to work out the Qty of 4 Port L2 LAN switches, Kindly clarify/confirm.	Based on I/O summary it can be calculated
35		BOQ-E 16 R0	6.01(I)	Floors :B1+ G+8 ( 10 stops & 10 openings) Speed - 1 MPS	Request to furnish the shaft size & total travel height of Lifts. Kindly clarify/confirm.	Lift shafts shall be as per CPWD/NBC Norms. Height will be as per civil work. Contractor may visit at site.

Sl.No	Ref.	Page no.	Clause No	Tender Description	Bidders Queries	Reply
41		BOQ-E 18 R0	8.01	Sub Head -8 EPABX		
			A	INCOMER		
				IP PBX 1100 Extension Expandable Type	How many number of Analog Extension required, Please confirm/ clarify.	1. IP PBX -3000 Ext. Expendable type, 2. Analog P&T lines 32 expandable upto 64 line, 3. Analoge Extention-1400. Rest details will be as per BOQ
42		SPEC Page E-82 R0	42	Solar Power System	The approved makes M/S CEL, BEL, BHEL are manufacturing only Solar PV module & not doing Trunkey project, So we request you to give approval of M/s Moser Baer, Autonic, Panasonic, Vikram Solar make also.	firms having MNRE certification for last 10 years can install solar photovoltaic system
43		SPEC Page E-83 R0	66	BMS, Field device etc.	Request to give approval of M/s DELTA-LOYTEC make for BMS. Kindly clarify/confirm.	As per approved make list
44		Page13 of122	8.1	In the case of discrepancy between the Schedule of Quantities, the Specifications and /or the Drawings, the following order of preference shall be observed a) Description of Schedule of Quantities b) Particular specifications and Special Condition, if any. c) Drawings d) CPWD Specifications e) Indian Standard Specifications of B.I.S.	The discrepancy between the order of Preference on SPEC Page E-3 R 0 CPWD/ IS specification, BOQ, Drawing, Technical specifications	As per Specifications.
			b		With the same, The Access Controller asked in tender was not with BACnet Compatibility, Which is again make access Control unable to seamlessly integrate with BMS. So It is suggested to remove the Access Control Integration with BMS as the protocol and Make of access control is not matching with requirement or Please limiting the access control integration only for Door Opening and Closing Status	Access control system integration with BMS is not required.
47					Kindly add Omnitech make in Nurse Call System	As per approved make list
48					Magnetic Autocontrol is mentioned in Boom Barrier's make but the same is missing in Parking Management System, so please add in Parking Management also	Magnetic Autocontrol accepted

**The Validity of Bid Security/ EMD in the form of Bank Guarantee (BG) will be considered from the original due date of bid submission i.e. 08.02.2017  
All other terms & Conditions of the Tender shall remain unchanged.**

**Prospective bidders are advised to regularly scan through HSCC e-tender portal <http://www.tenderwizard.com/HSCC> and HSCC Website [www.hsccltd.co.in](http://www.hsccltd.co.in) as corrigendum/amendments etc., if any, will be notified on this portal only and separate advertisement will not be made for this.**

(-Sd-)  
**General Manager (Elect.), HSCC (India) Ltd.,  
for & on Behalf of Director, AIIMS, New Delhi**

# Annexure - I

SCHEDULE OF DATA POINT SUMMARY A, B, C, Block Hospital Building							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>A, B, C Block</b>						
	<b>Chilled Water Plant</b>						
A	<b>Water Chiller - 4Nos.</b>	<b>4</b>					
1	Chiller integration						Chiller Integration on Bacnet/IP
2	Chillers-Enable ( ON OFF)				4		At Chiller Panel
3	Chillers on/off Status		4				From Chiller Panel
4	Chillers-Trip Status		4				From Chiller Panel
5	Chillers-Supply Temp OUTLET TEMP			4			Immersion Temp Sensor
6	Common CHW supply Temp.			1			Immersion Temp Sensor
7	Common CHW Return Temp.			1			Immersion Temp sensor
8	CHW Flow Monitoring			4			Flow Meter
9	Chiller flow status		4				Water DP switch
10	Chiller Isolation valve-OPERN/CLOSE CMD				4		Chiller Control Panel
11	Chiller Isolation valve-OPERN/CLOSE Status		4				Chiller Control Panel
12	CONDENSOR Isolation valve-OPERN/CLOSE Command				4		Chiller Control Panel
13	CONDENSOR Isolation valve-OPERN/CLOSE STS		4				Chiller Control Panel
14	Chiller auto/manual status		4				Electric panel
15	Ambient temp. & Rh sensor			2			Outside T& RH
B	<b>Primary Pumps –4 Nos.</b>	<b>4</b>					
1	Primary CHW pumps START/STOP				4		At local Panel
2	Primary CHW pumps Status		4				At local Panel
3	Primary pumps auto/manual status		4				Electric panel
4	Primary pumps trip status		4				DP switch
C	<b>Second Pumps 9 Nos.</b>	<b>9</b>					
1	Secondary CHW pumps START/STOP				9		At controller of variable pumping system
2	Secondary CHW pumps Status		9				At Pump Panel
3	VFD Frequency Feedback			9			VFD Panel
4	Secondary Pumps auto /manual status		9				Electric panel
5	VSPS ntegration-9PLC						Software integration
6	Trip status		9				DP Switch
D	<b>Condenser Pumps –4 Nos.</b>	<b>4</b>					
1	Cond. pumps START/STOP				4		At local Panel
2	Cond. CHW pumps Status		4				At local Panel

S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>A, B, C Block</b>						
3	cond pumps trip status		4				DP Switch
4	Cond. Pump auto/manual status		4				Electric panel
	<b>Total ForAC Plant</b>		<b>75</b>	<b>21</b>	<b>29</b>	<b>0</b>	<b>125</b>
D	<b>Cooling tower - 4 Nos.</b>	<b>4</b>					
1	Cooling tower START/STOP				4		At local panel
2	Cooling tower operation status		4				Current Relay
3	Cooling tower IN isolation valve OPEN/CLOSE				4		Actuator Control Panel
4	Cooling tower IN isolation valve OPEN/CLOSE sts		4				Actuator Control Panel
5	Cooling tower OUT isolation valve OPEN/CLOSE				4		Actuator Control Panel
6	Cooling tower OUT isolation valve OPEN/CLOSE sts		4				Actuator Control Panel
7	Cooling tower low water level Alarm		4				Level Switch
8	VFD Integration						VFD Integration on MODBUS RS485
	<b>Total ForCooling Tower</b>		<b>16</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>28</b>
B	<b>Hot Water Generator -4Nos. &amp; Pump -4Nos.</b>	<b>8</b>					
1	Fan ON/OFF				8		Panel
2	Fan Run Status		8				DP Switch
3	Fans Auto Manual Status		8				Volt Free Contact from Auto /Manual Switch

S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	A, B, C Block						
	<b>Total for AHU Units</b>		<b>16</b>	<b>0</b>	<b>8</b>	<b>0</b>	
C	<b>AHU Units-With VFD (max 1AHU in 1 DDC)</b>						
1	AHU On/Off Status		71				AHU panel
2	AHU On/Off Control				71		AHU panel
3	AHU Trip status		71				Air DP Switch
4	A/M status		71				AHU Panel
5	Ahu Filter Status		71				DP Switch
6	Return Air Temp + Humidity			142			Duct mounted T+Rh sensor
7	Supply air temp			71			Duct mounter temp sensor
8	Chiller water Valve status			71			1-10V signal
9	Chilled water Valve control					71	1-10V signal
10	Fresh Air damper status		71				AHU panel
11	Fresh Air damper control					71	1-10 V signal
12	Supply Fire Damper control				71		AHU panel
13	Return Fire Damper control				71		AHU panel
14	VFD speed control					71	0-10V signal
15	Chilled water inlet temperature			71			Water temp sensor
16	Return Air CO2 level			71			Duct mounter Co2 sensor
17	Spares		71	71	71	71	
	<b>Total for AHU Units</b>		<b>426</b>	<b>497</b>	<b>284</b>	<b>284</b>	<b>1491</b>
			6	7	4	4	
D	<b>AHU Units-OT (max 2AHU in 1 DDC)</b>						
1	AHU On/Off Status		20				AHU panel
2	AHU On/Off Control				20		AHU panel
3	AHU Trip status		20				Air DP Switch
4	A/M status		20				AHU Panel
5	Ahu Filter Status		20				DP Switch
6	HEPA Filter status		20				DP Switch
7	Return Air Temp + Humidity			40			Duct mounted T+Rh sensor
8	Supply air temp			20			Duct mounter temp sensor
9	Chiller water Valve status			20			1-10V signal
10	Chilled water Valve control					20	1-10V signal
11	Fresh Air damper status		20				AHU panel
12	Fresh Air damper control					20	1-10 V signal
13	Supply Fire Damper control				20		AHU panel
14	Return Fire Damper control				20		AHU panel

S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>A, B, C Block</b>						
15	VFD speed control					20	0-10V signal
16	Chilled water inlet temperature			20			Water temp sensor
17	Return Air CO2 level			20			Duct mounter Co2 sensor
18	Spares		20	20	20	20	
	<b>Total for AHU Units</b>		<b>140</b>	<b>140</b>	<b>80</b>	<b>80</b>	<b>440</b>
			7	7	4	4	
E	<b>Exhaust Fans</b>						
1	Fan ON/OFF				50		Ventilation Panel
2	Fan Run Status		50				DP Switch-Blower
3	Fans Auto Manual Status		50				
	<b>Total</b>		<b>100</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>150</b>
F	<b>Lift &amp; Lift Lobby Pressurisation Fans</b>						
1	Fan ON/OFF-Test Run				29		Ventilation Panel
2	Fan Run Status		29				DP Switch-Blower
3	Fans Auto Manual Status		29				Volt Free Contact from Auto /Manual Switch
	<b>Total</b>		<b>58</b>	<b>0</b>	<b>29</b>	<b>0</b>	
H	<b>FIRE FIGHTING</b>						
1	Main Fire Pump Status		2				Differential Pressure Switch for Pumps
2	Main Fire Pump On/Off				2		PFC To panel
3	Main Fire pump Auto Manual Status		2				From A/M switch
4	Jockey Pumps Status		2				Differential Pressure Switch for Pumps
5	Jockey Pumps On/Off				2		PFC To panel
6	Jockey Pump auto manual status		2				From A/M switch
7	Diesel Tank High/Low Level		4				Flame/ Explosion Poof Bi - Level Switch
8	Diesel Pumps Status		2				Differential Pressure Switch for Pumps
9	Diesel pump On/off				2		PFC To panel
10	Diesel pump auto manual status		2				From A/M switch
11	Terrace Pump		8				Differential Pressure Switch for Pumps
12	Terrace Mump On/off				8		PFC To panel
13	Terrace pump auto manual status		2				From A/M switch
14	Pressure Monitoring			1			Pressure Transmitter
15	Water tanks hi-low status		16				Water level swithces
	<b>Total</b>		<b>26</b>	<b>1</b>	<b>14</b>	<b>0</b>	<b>41</b>



S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>A, B, C Block</b>						
K	<b>DG SET-4Nos.</b>						
	Integration of DG						Integration of DG on Modbus RS485 to BMS
	Disel level Monitoring		8				Flameproof Level Switch
L	<b>Condensor Pump for DG</b>						
1	Pump ON/ OFF Control				4		PFC
2	Pump Auto/manual Status		4				PFC
3	Pump run status		4				DP switch
	<b>Total</b>		<b>16</b>	<b>0</b>	<b>4</b>	<b>0</b>	
L	<b>LT panel integration</b>						
	Breaker on/off status		80				
	Breaker trip status		80				
	<b>Total</b>		<b>160</b>				
M	<b>UPS Integration- 12 Nos</b>		<b>250 points</b>				
N	<b>Energy Meters- 80 Nos</b>		1600 points				
O	<b>WTP</b>						
	Various Pumps on/off status		24				PFC from panel
	various Pump On/off command				24		PFC to panel
	Various pump run status		24				DP switch
	Various pump auto manual status		24				PFC from panel
	Water Tank level status		56				Water level switch
	Water flow status		7				DP switch
	<b>Total</b>		<b>135</b>	<b>0</b>	<b>24</b>	<b>0</b>	
P	<b>STP</b>						
	Various Pumps on/off status		14				PFC from panel
	various Pump On/off command				14		PFC to panel
	Various pump run status		14				DP switch
	Various pump auto manual status		14				PFC from panel
	Water Tank level status		4				Water level switch
	Water flow status		7				DP switch
	<b>Total</b>		<b>53</b>	<b>0</b>	<b>14</b>	<b>0</b>	
	<b>Block Total</b>		<b>1221</b>	<b>659</b>	<b>548</b>	<b>364</b>	

SCHEDULE OF DATA POINT SUMMARY Admin+BSR+OPD Building							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>Admin+BSR+OPD</b>						
	<b>Chilled Water Plant</b>						
A	<b>Water Chiller - 5Nos.</b>	<b>5</b>					
1	Chiller integration						Chiller Integration on Bacnet/IP
2	Chillers-Enable ( ON OFF)				5		At Chiller Panel
3	Chillers on/off Status		5				From Chiller Panel
4	Chillers-Trip Status		5				From Chiller Panel
5	Chillers-Supply Temp OUTLET TEMP			5			Immersion Temp Sensor
6	Common CHW supply Temp.			1			Immersion Temp Sensor
7	Common CHW Return Temp.			1			Immersion Temp sensor
8	CHW Flow Monitoring			5			Flow Meter
9	Chiller flow status		5				Water DP switch
10	Chiller Isolation valve-OPERN/CLOSE CMD				5		Chiller Control Panel
11	Chiller Isolation valve-OPERN/CLOSE Status		5				Chiller Control Panel
12	CONDENSOR Isolation valve-OPERN/CLOSE Command				5		Chiller Control Panel
13	CONDENSOR Isolation valve-OPERN/CLOSE STS		5				Chiller Control Panel
14	Chiller auto/manual status		5				Electric panel
15	Ambient temp. & Rh sensor			2			Outside T& RH
B	<b>Primary Pumps –5 Nos.</b>	<b>5</b>					
1	Primary CHW pumps START/STOP				5		At local Panel
2	Primary CHW pumps Status		5				At local Panel
3	Primary pumps auto/manual status		5				Electric panel
4	Primary pumps trip status		5				DP switch
C	<b>Second Pumps 9 Nos.</b>	<b>9</b>					
1	Secondary CHW pumps START/STOP				9		At controller of variable pumping system
2	Secondary CHW pumps Status		9				At Pump Panel
3	VFD Frequency Feedback			9			VFD Panel
4	Secondary Pumps auto /manual status		9				Electric panel
5	VSPS ntegration-9PLC						Software integration
6	Trip status		9				DP Switch
D	<b>Condenser Pumps –5 Nos.</b>	<b>5</b>					
1	Cond. pumps START/STOP				5		At local Panel
2	Cond. CHW pumps Status		5				At local Panel

SCHEDULE OF DATA POINT SUMMARY Admin+BSR+OPD Building							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>Admin+BSR+OPD</b>						
3	cond pumps trip status		5				DP Switch
4	Cond. Pump auto/manual status		5				Electric panel
	<b>Total ForAC Plant</b>		<b>87</b>	<b>23</b>	<b>34</b>	<b>0</b>	<b>144</b>
D	<b>Cooling tower - 5 Nos.</b>	<b>5</b>					
1	Cooling tower START/STOP				5		At local panel
2	Cooling tower operation status		5				Current Relay
3	Cooling tower IN isolation valve OPEN/CLOSE				5		Actuator Control Panel
4	Cooling tower IN isolation valve OPEN/CLOSE sts		5				Actuator Control Panel
5	Cooling tower OUT isolation valve OPEN/CLOSE				5		Actuator Control Panel
6	Cooling tower OUT isolation valve OPEN/CLOSE sts		5				Actuator Control Panel
7	Cooling tower low water level Alarm		4				Level Switch
8	VFD Integration						VFD Integration on MODBUS RS485
	<b>Total ForCooling Tower</b>		<b>19</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>34</b>
B	<b>Hot Water Generator -3Nos. &amp; Pump - 2Nos.</b>	<b>5</b>					
1	Fan ON/OFF				5		Panel
2	Fan Run Status		5				DP Switch
3	Fans Auto Manual Status		5				Volt Free Contact from Auto /Manual Switch
	<b>Total for AHU Units</b>		<b>10</b>	<b>0</b>	<b>5</b>	<b>0</b>	

SCHEDULE OF DATA POINT SUMMARY Admin+BSR+OPD Building							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>Admin+BSR+OPD</b>						
C	<b>AHU Units-With VFD (max 1AHU in 1 DDC)</b>		38				
1	AHU On/Off Status		38				AHU panel
2	AHU On/Off Control				38		AHU panel
3	AHU Trip status		38				Air DP Switch
4	A/M status		38				AHU Panel
5	Ahu Filter Status		38				DP Switch
6	Return Air Temp + Humidity			76			Duct mounted T+Rh sensor
7	Supply air temp			38			Duct mounter temp sensor
8	Chiller water Valve status			38			1-10V signal
9	Chilled water Valve control					38	1-10V signal
10	Fresh Air damper status		38				AHU panel
11	Fresh Air damper control					38	1-10 V signal
12	Supply Fire Damper control				38		AHU panel
13	Return Fire Damper control				38		AHU panel
14	VFD speed control					38	0-10V signal
15	Chilled water inlet temperature			38			Water temp sensor
16	Return Air CO2 level			38			Duct mounter Co2 sensor
17	Spares		38	38	38	38	
	<b>Total for AHU Units</b>		<b>228</b>	<b>266</b>	<b>152</b>	<b>152</b>	<b>798</b>
			6	7	4	4	
D	<b>CSU Units (max 2 CSU in 1 DDC)</b>		26				
1	AHU On/Off Status		26				AHU panel
2	AHU On/Off Control				26		AHU panel
3	AHU Trip status		26				Air DP Switch
4	A/M status		26				AHU Panel
5	Ahu Filter Status		26				DP Switch
6	Return Air Temp + Humidity			52			Duct mounted T+Rh sensor
7	Supply air temp			26			Duct mounter temp sensor
8	Chiller water Valve status			26			1-10V signal
9	Chilled water Valve control					26	1-10V signal
10	Fresh Air damper status		26				AHU panel
11	Fresh Air damper control					26	1-10 V signal
12	Supply Fire Damper control				26		AHU panel
13	Return Fire Damper control				26		AHU panel
14	VFD speed control					26	0-10V signal

SCHEDULE OF DATA POINT SUMMARY Admin+BSR+OPD Building							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>Admin+BSR+OPD</b>						
15	Chilled water inlet temperature			26			Water temp sensor
16	Return Air CO2 level			26			Duct mounter Co2 sensor
17	Spares		26	26	26	26	
	<b>Total for AHU Units</b>		<b>156</b>	<b>182</b>	<b>104</b>	<b>104</b>	<b>546</b>
			6	7	4	4	
K	<b>DG SET-2Nos.</b>						
	Integration of DG						Integration of DG on Modbus RS485 to BMS
	Disel level Monitoring		4				Flameproof Level Switch
L	<b>Condensor Pump for DG</b>						
1	Pump ON/ OFF Control				4		PFC
2	Pump Auto/manual Status		4				PFC
3	Pump run status		4				DP switch
	<b>Total</b>						
L	<b>LT panel integration</b>						
	Breaker on/off status		40				
	Breaker trip status		40				
	<b>Total</b>		<b>80</b>				
M	<b>UPS Integration- 8 Nos</b>						<b>250 points</b>
N	<b>Energy Meters- 40 Nos</b>						<b>800 points</b>
	Block Total		<b>500</b>	<b>471</b>	<b>310</b>	<b>256</b>	

SCHEDULE OF DATA POINT SUMMARY Animal house							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
	<b>A, B, C Block</b>						
	<b>Chilled Water Plant</b>						
A	<b>Water Chiller - 3Nos.</b>	<b>3</b>					
1	Chiller integration						Chiller Integration on Bacnet/IP
2	Chillers-Enable ( ON OFF)				3		At Chiller Panel
3	Chillers on/off Status		3				From Chiller Panel
4	Chillers-Trip Status		3				From Chiller Panel
5	Chillers-Supply Temp OUTLET TEMP			3			Immersion Temp Sensor
6	Common CHW supply Temp.			1			Immersion Temp Sensor
7	Common CHW Return Temp.			1			Immersion Temp sensor
8	CHW Flow Monitoring			3			Flow Meter
9	Chiller flow status		3				Water DP switch
10	Chiller Isolation valve-OPERN/CLOSE CMD				3		Chiller Control Panel
11	Chiller Isolation valve-OPERN/CLOSE Status		3				Chiller Control Panel
12	CONDENSOR Isolation valve-OPERN/CLOSE Command				3		Chiller Control Panel
13	CONDENSOR Isolation valve-OPERN/CLOSE STS		3				Chiller Control Panel
14	Chiller auto/manual status		3				Electric panel
15	Ambient temp. & Rh sensor			2			Outside T& RH
B	<b>Primary Pumps –3Nos.</b>	<b>3</b>					
1	Primary CHW pumps START/STOP				3		At local Panel
2	Primary CHW pumps Status		3				At local Panel
3	Primary pumps auto/manual status		3				Electric panel
4	Primary pumps trip status		3				DP switch
C	<b>Second Pumps 3 Nos.</b>	<b>3</b>					
1	Secondary CHW pumps START/STOP				3		At controller of variable pumping system
2	Secondary CHW pumps Status		3				At Pump Panel
3	VFD Frequency Feedback			3			VFD Panel
4	Secondary Pumps auto /manual status		3				Electric panel
5	VSPS ntegration-9PLC						Software integration
6	Trip status		3				DP Switch
	<b>Total ForAC Plant</b>		<b>36</b>	<b>13</b>	<b>15</b>	<b>0</b>	<b>64</b>
B	<b>Hot Water Generator -2Nos.</b>	<b>2</b>					
1	Fan ON/OFF				2		Panel
2	Fan Run Status		2				DP Switch
3	Fans Auto Manual Status		2				Volt Free Contact from Auto /Manual Switch
	<b>Total for HWG Units</b>		<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	
C	<b>AHU Units-With VFD (max 1AHU in 1 DDC)</b>		2				
1	AHU On/Off Status		2				AHU panel

SCHEDULE OF DATA POINT SUMMARY Animal house							
Di	Digital Input	Ai	Analog Input,	Do	Digital Output,	Ao	Analog Output
S.NO.	DESCRIPTION	Qty	DATA PIONT TYPE				FIELD DEVICE
			Di	Ai	Do	Ao	
2	AHU On/Off Control				2		AHU panel
3	AHU Trip status		2				Air DP Switch
4	A/M status		2				AHU Panel
5	Ahu Filter Status		2				DP Switch
6	Return Air Temp + Humidity			4			Duct mounted T+Rh sensor
7	Supply air temp			2			Duct mounter temp sensor
8	Chiller water Valve status			2			1-10V signal
9	Chilled water Valve control					2	1-10V signal
10	Fresh Air damper status		2				AHU panel
11	Fresh Air damper control					2	1-10 V signal
12	Supply Fire Damper control				2		AHU panel
13	Return Fire Damper control				2		AHU panel
14	VFD speed control					2	0-10V signal
15	Chilled water inlet temperature			2			Water temp sensor
16	Return Air CO2 level			2			Duct mounter Co2 sensor
17	Spares		2	2	2	2	
<b>Total for AHU Units</b>			<b>12</b>	<b>14</b>	<b>8</b>	<b>8</b>	

25 8 Block Total 52 27 25 8