

Ref No.:- F3.3(439)/RISL/PUR/2022/352

Date: 10/02/2022

Corrigendum – 2

The clarification and subsequent changes in RFP after Pre-Bid queries for the work of "Construction & Maintenance of Rajiv Gandhi Knowledge Service & Innovation Hub and Rajasthan Institute of Advance Learning at Jaipur" NIB No F3.3(439)/RISL/PUR/2022/299 dated 23/01/2023, Tender ID 2023_RISL_316161_1 is revised and uploaded on e-proc.


Technical Director
(Civil & Electrical), IT&C

CONSTRUCTION AND MAINTENANCE OF RAJIV
GANDHI KNOWLEDGE SERVICE & INNOVATION
HUB AND RAJASTHAN INSTITUTE OF
ADVANCED LEARNING AT JAIPUR

Annexure B (Corrigendum-II)
**Clarifications of Pre-Bid Queries dated 03-
Feb-2023**



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1. NALCO- Automatic Chemical Dosing System (BOQ-15 , item no 222)

This technology extends itself beyond measuring the product level and maps the system stress and maintains the optimum concentration of active component in the chemical require to combat that stress.

3D TRASAR & DIGITAL:

a) 3D TRASAR Controller: Supports

- Power: 220...240Vac, 50/60Hz, Max.1800VA (7.5A@240Vac, 15A@120Vac).
- Analog inputs: 8, non-isolated, 4...20mA or 0...10V.
- Digital inputs: 16 o 8: e.g. flow switch, remote start/stop (interlock)
- Modbus connections: 6 total,
- Control relay outputs: 8, NO/NC, mechanical, max. 250Vac, max. 12A for all 8 relays combined. Each relay fused at 4A, powered or contact operation.
- Alarm relay output: 2, NO/NC, mechanical, max. 250Vac, fused at 4A, contact operation.
- Analog outputs: 8, non-isolated, self-powered, 4...20mA.
- Multiple language enabled platform
- Integrated Wireless gateway for 2-way wireless communication.

b) Modular Fluorometer

- TRASAR o Tagged Polymer
- Turbidity
- Background Fluorescence
- Temperature
- Cell Fouling.

c) pH

d) ORP

e) Conductivity

f) EGIC Support

Next Gen 3DT Light Consists of following items

Sl. No.	Item Description	UOM	QTY.
1	3DTNXG-CWL ANALYZER, WM 240V (AP) (3DT-CWL500P.88)	Set	1
2	NGG Antenna, Magnetic Mount, Domestic	Nos.	1
3	3DTNXG-CW STARTUP KIT (500-NGTSRKIT.88)	No.	1
4	NXG PH PROBE,1-WIRE BLU (3DT-PHPRB1.88)	No.	1
5	(084-MV075F.88)- KLD20S 3/4" Ball valve For Blowdown	No.	1
6	Electrical Control Panel (Non-UPS)	No.	1
7	SS Frame for Next Gen Lite	No.	1
8	2.0KVA Hi-Tech Servo Stabilizer	No.	1

Sl. No.	Item Description	UOM	QTY.
9	2.0KVA Isolation Transformer (1:1)	No.	1
10	Chemical & Hypo Dosing Pump, Milton Roy, Model - UC-11 PP; Capacity- 4 LPH @ 5.5 KG/cm2	Nos.	3
11	Acid Dosing Pump, Prominent make, Model - CC30407T; Capacity- 6.3 LPH @ 3.5 Bar;	No.	1
12	100 Litres, LLDPE tank	Nos.	4

2. Cast resin type Bus Duct Specification (BOQ -3 item no 368-372)

1. Standards & Certification:

- CCR Busbar system should be designed and manufactured as per IEC 61439-6 standard, which requires below listed tests. Each busbar rating Should be type tested individually and comply with recent IEC 61439-6 standards for all type tests and certified by independent authorized testing laboratory as KEMA/DEKRA including below test:
 - a. Strength of material and parts,
 - b. Resistance to corrosion,
 - c. Properties of insulating materials,
 - d. Verification of thermal stability of enclosures,
 - e. Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects,
 - f. Mechanical impact,
 - g. Marking,
 - h. Ability to withstand mechanical loads ,
 - i. Test procedure for a straight busbar trunking unit,
 - j. Test procedure for a joint,
 - k. Resistance of the enclosure to crushing,
 - l. Degree of protection of assembly,
 - m. Clearances and creepage distances,
 - n. Protection against electric shock and integrity of protective circuits,
 - o. Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit,
 - p. Short-circuit withstand strength of the protective circuit,
 - q. Dielectric properties,
 - r. Power-frequency withstand voltage,
 - s. Impulse withstand voltage,
 - t. Verification of temperature rise,
 - u. Short- circuit withstand strength, Annex BB Phase conductor characteristics, Annex CC Fault-loop zero-sequences impedances, Annex DD Fault-loop resistances and reactances.

- BUS DUCT/BBT OEM should have ISO 9001, ISO 14001, ISO 18001, and ISO 27001 certification.

- Each product should have a "Type Label" including coding system, which identifies the brand, type of the unit, number of conductors and electrical details. The same coding is on the related certificate and the catalogue.

- CCR product and production method are "Under Regular Surveillance" and they are continuously monitored for conformity by KEMA KEUR and UL.

- CCR Busbar should have high flame resistance and circuit integrity properties under fire conditions according to IEC 60331-1 and BS 8602 standard

- CCR Busbar provides IP68 protection against outdoor conditions

- CCR is certified according to IEC 60068-3-3 / 60068-2-57, IEEE-693 with using BUS DUCT/BBT

OEM seismic bracing products.

2. Electrical Characteristics

CCR Busbar systems nominal voltage is 1000 V.

2.1 Structure

- a. Housing is manufactured with specially developed metal protection and cast resin material.
- b. Conductors between phases are epoxy coated and tin plated at the joints.
- c. Housing is sealed by composite material that is resistant to dust, water, moisture, magnetic, chemical corrosion.
- d. Busbar systems can be easily re-jointed or re-connected in order to adapt to a change in design or system load requirements. A protection rating of IP68 and the same flame-retardant functionality remains constant, even when the busway is re-jointed or re-connected.
- e. CCR Busbar system should have "Sandwich-Compact" structure. Conductors are packed and placed into the housing without leaving air gap in order to provide low reactance.
- f. Access to only one side of the busway shall be required for tightening the joint bolts.

2.2 Conductors

1. Aluminum or Copper conductors are epoxy coated and tin plated at the joints upon the
2. wire configuration and required numbers, which are described below.
3. CCR busbar system should have aluminum conductors between 600A – 5400A.
4. CCR busbar system should have copper conductors between 850A – 6300A.
5. CCR busbar system should have the following number of conductors and wire configuration;
 - a. Conductors: (3 full size conductors + PE (housing)).
 - b. Conductors: (4 full size conductors + PE (100% earth conductor + housing)),
 - c. 4½ Conductors: (4 full size conductors + PE (50% earth conductor + housing)),
 - d. Conductors: (5 full size conductors + PE (100% earth conductor + housing)),

- Phase conductors and neutral conductor have the same cross-section and they are
- insulated.
- Aluminum conductors are EC grade aluminum. Minimum conductivity is
- 34m/mm².
- Copper conductors are minimum 99,95% electrolytic copper. Minimum conductivity
- is 56m/mm²
- The minimum short-circuit values of the busbar channels should be as follows;

- Al Conductors;
- 600A : 1 sec value 25kA, peak value 52,5kA
- 800-1250A : 1 sec value 35kA, peak value 73,5kA
- 1600A : 1 sec value 60kA, peak value 132kA
- 2000A : 1 sec value 80kA, peak value 176kA
- 2500A and above : 1 sec value 100kA, peak value 220kA
- Cu Conductors;
- 850A : 1 sec value 23kA, peak value 48,3kA
- 1000A : 1 sec value 50kA, peak value 105kA
- 1250-1600-2000A : 1 sec value 80kA, peak value 176kA

- 2500A and above : 1 sec value 95kA, peak value 210,5kA

2.3 Insulation

- Insulation system is suitable for 1.000 V continuous operation. Specially formulated Class B epoxy insulation should be applied as insulation material which provides high insulation resistance and high peak temperature resistance. Epoxy is UL V0 class and halogen and toxic free properties.

2.4 Joint Structure

- Busway joint enclosure insulation materials: Resin based, gasket or packing formed to allow mechanically compressed sealing functionality. It also allows several openings of the joint enclosure without losing its IP68 water & dust proof capability.
- Electrical and mechanical connection is making by placing conductor joints into the joint blocks of the connected conductors and followed by tightening and fastening of the joint bolts. CCR Busbar also includes special accessories from BUS DUCT/BBT OEM including Belleville spring washer, that retains its original contact pressure ensuring proper electrical contact. Offers securer, more reliable and virtually maintenance-free joint.
- All parts of the joint structure are plated with tin against contact losses due to corrosion in order to get safe and reliable earth connections and have very low resistance values entire length.

2.5 Protection

- Protection degree of the housing and joints are IP68

2.6 Accessories

- CCR Busbar system should have all necessary accessories (elbows, offsets, panel-transformer connections, reductions, etc.) BUS DUCT/BUS DUCT/BBT OEM supply special dimensioned units in short time, if the project conditions require.
- For horizontal runs, a horizontal expansion unit should be used at every 40m and expansion points of the building.
- For vertical applications, a vertical expansion unit should be used at every floor. Busbar system must be rigidly fixed by supports at every floor.

2.7 Joint Structure

- Busway joint enclosure insulation materials: Resin based, gasket or packing formed to allow mechanically compressed sealing functionality. It also allows several openings of the joint enclosure without losing its IP68 water & dust proof capability.
- Electrical and mechanical connection is making by placing conductor joints into the joint blocks of the connected conductors and followed by tightening and fastening of the joint bolts. CCR Busbar also includes special accessories from BUS DUCT/BBT OEM including Belleville spring washer, that retains its original contact pressure ensuring proper electrical contact. Offers securer, more reliable and virtually maintenance-free joint.
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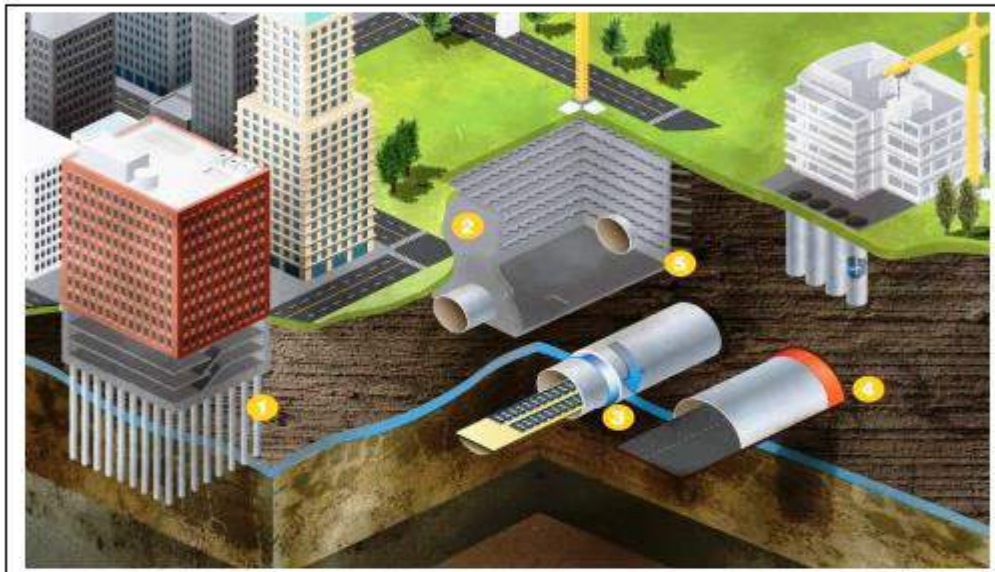
3. Soil Investigation Report



ShagunArc Engineering Pvt. Ltd.

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Sub Soil Investigation Report



Client Name:

.....

Consultant Name:

.....,

Jaipur, Rajasthan

Project:

Building

Project Location:

Fintech Park RIICO, Tonk Road, Jaipur

Report No.

Dated: 03/02/2023

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

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Annexure I: References

Annexure II: Grain Size Distribution Curves

Annexure III: Laboratory Test Results

Annexure IV: Site Photographs & Location Plan of Boreholes

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

1.0 Introduction

The main function of a foundation is to distribute or transmit all loads coming over it to the soil or ground upon which it rests. The knowledge of the characteristics of underlying soil is therefore very essential for safe & economical design of foundations. The performance of supporting stratum depends upon the physical properties of soil type & shape of footing & structure, water table depth etc.

Soil has different meanings depending upon the area of interest of the professional to an agriculturist, soil means top earth's surface which supports plant life. To a geologist it is thin top crust of earth formed by disintegration of rocks. To an engineer it is un-cemented loose cohesive or cohesion less material. Soil may have particles ranging from fraction of micron to large boulder.

Soil is a complex material which contains inorganic non cohesive material in various percentages. It may also contain chemicals. Study of soil and its behavior is important for design of foundations, pavements, underground and earth retaining structures, embankments and earth dams.

Geology is a science which deals with behavior and application of soil as engineering material. Terzaghi defined soil mechanics as the application of laws of mechanics and hydraulics to engineering problems dealing with sediments and other unconsolidated accumulations of solid particles produced by mechanical and chemical disintegration of rocks regardless of that these contain an admixture of organic constituent.

Soil is produced by disintegration of solid rocks. The production of soil is cyclic and soil cycle consists of weathering, denudation, transportation and deposition. All the planes and valleys are formed by this procedure. Inorganic soils get organic material from decaying vegetation.

Soil in its natural state is a three phase system, it contains solids, water and air, in dry mass of soil, the voids contain air and hygroscopic moisture surrounding and adhering to surface of soil particles. When all the voids are filled with water it is saturated mass of soil. The knowledge of properties of soil is important for –

- Foundation design.
- Pavement design.
- Design of underground and earth retaining structures.
- Design of embankments.
- Design of earth dams.

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

2.0 Project

Building

3.0 Location of site

Fintech Park, RIICO Industrial area Tonk Road, Jaipur (Rajasthan)

4.0 Scope of work

Field investigation at the site are planned to determine the required characteristics of underlying soil to design the foundations of the proposed structure, the data obtained from these investigations have been analyzed to arrive at the required parameters, mainly the safe bearing capacity of the soil at various depth with respect to the existing ground level. In order to achieve the stated objectives, the stipulated scope of work included following operations

The Geotechnical Investigation work includes:

- Drilling of 100-150 mm diameter boreholes in all kinds of soils up to 15 meter depth or up to refusal strata whichever is earlier as specified by client.
- Conducting Standard Penetration Test at every 1.5 m interval starting from first sample at 1.5 m depth or at the change of stratum as per IS: 2131.
- Collection of disturbed, undisturbed soil samples and sealing, numbering and preserving them and carrying out various laboratory tests as per relevant Indian Standards.

Following test shall be carried out for the samples collected from site:

- a) **Test on Undisturbed and disturbed Samples**
 - Visual and Engineering Classification
 - Sieve Analysis
 - Liquid and plastic limits
 - Specific Gravity
- b) **Test on Undisturbed Samples**
 - Bulk Density and Natural Moisture Content
 - Shear Strength Parameters (C & Φ)

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

5.0 Field Investigation

The standard penetration test was conducted in bore holes in soils following the Standard procedure as per Indian standard IS: 2131, which specifies the procedure for conducting SPT for soil. This test is carried out using the standard split spoon sampler to measure the number of blows called 'N' Value. Standard split spoon sampler was attached to an 'A' rod. It was driven into the soil to a distance of 45 cm using a standard hammer falling freely from a height of 75 cm while driving, the number of blows required to penetrate the last 30 cm is taken as 'N' value at that particular depth of the bore hole. This value is then used for calculating the bearing capacity of the soil and subsurface investigations in the field involve three basic operations:-

- Drilling
- Sampling
- Conducting the required field test. This is followed by operations in the laboratory for conducting prescribed laboratory tests.

6.0 General Site Conditions

6.1 Site Subsoil Conditions & Ground water

Based on our investigation in field and laboratory, it is revealed that the soils at site comprise **Silty Sand with Gravel**. Based on standard penetration test, the soils are **medium dense** at this site.

Based on our measurement in the completed boreholes **water** has been **not found** up to the final explored depth.

7.0 Laboratory Tests Results

All test were conducted in accordance with the procedure laid down in Indian Standard IS: 2720, results obtained are presented in Annexure II and bearing capacity results Based on IS: 6403-1981 and IS 8009 (Part 1) are presented in Table-1 to Table-2.

The safe Bearing capacity at depth is presented in Table -3

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

8.0 Results and Analysis

The field investigation and laboratory tests conducted over the soil revealed the following Conclusions:

Table No. - 1
Safe Bearing Capacity Local Shear Failure Criteria (Isolated Square Footing)

BH	Depth (m)	Width (m)	Avg. Bulk Density (gm/cm ³)	Cohesion (T/m ²)	Φ	Φ'	N _c	N _q	N _γ	Q _{nf} (T/m ²)	Q _{ns} (T/m ²)	Q _s (T/m ²)
BH-1	1.50	3.00	1.791	0.00	28	20	14.83	6.40	5.39	28.99	11.60	14.28
	3.00	3.00	1.791	0.00	28	20	14.83	6.40	5.39	46.40	18.56	23.93
	4.50	3.00	1.791	0.00	27	19	13.93	5.80	4.68	56.48	22.59	30.65
	6.00	3.00	1.791	0.00	27	19	13.93	5.80	4.68	71.96	28.78	39.53
	7.50	3.00	1.791	0.00	27	19	13.93	5.80	4.68	87.43	34.97	48.40
	9.00	3.00	1.791	0.00	28	20	14.83	6.40	5.39	116.04	46.41	62.53
	10.50	3.00	1.791	0.00	28	20	14.83	6.40	5.39	133.44	53.38	72.18
	12.00	3.00	1.791	0.00	28	20	14.83	6.40	5.39	150.85	60.34	81.83
	13.50	3.00	1.791	0.00	28	20	14.83	6.40	5.39	168.26	67.30	91.48
	15.00	3.00	1.791	0.00	28	20	14.83	6.40	5.39	185.67	74.27	101.13
BH-2	0.75	3.00	1.778	0.00	26	18	13.10	5.26	4.07	15.50	6.20	7.53
	2.25	3.00	1.778	0.00	27	19	13.93	5.80	4.68	33.03	13.21	17.21
	3.75	3.00	1.778	0.00	27	19	13.93	5.80	4.68	48.39	19.36	26.02
	5.25	3.00	1.778	0.00	28	20	14.83	6.40	5.39	71.99	28.80	38.13
	6.75	3.00	1.778	0.00	27	19	13.93	5.80	4.68	79.11	31.65	43.65
	8.25	3.00	1.778	0.00	28	20	14.83	6.40	5.39	106.55	42.62	57.29
	9.75	3.00	1.778	0.00	28	20	14.83	6.40	5.39	123.83	49.53	66.87
	11.25	3.00	1.778	0.00	27	19	13.93	5.80	4.68	125.20	50.08	70.08
	12.75	3.00	1.778	0.00	28	20	14.83	6.40	5.39	158.40	63.36	86.03
	14.25	3.00	1.778	0.00	28	20	14.83	6.40	5.39	175.68	70.27	95.61

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

**Safe Bearing Capacity Local Shear Failure Criteria** (Isolated Square Footing)

BH	Depth (m)	Width (m)	Avg. Bulk Density (gm/cm ³)	Cohesion (T/m ²)	Φ	Φ'	N_c	N_q	N_γ	Q_{nf} (T/m ²)	Q_{ns} (T/m ²)	Q_s (T/m ²)
BH-3	1.50	3.00	1.783	0.00	27	19	13.93	5.80	4.68	25.42	10.17	12.84
	3.00	3.00	1.783	0.00	27	19	13.93	5.80	4.68	40.82	16.33	21.68
	4.50	3.00	1.783	0.00	30	21	15.82	7.07	6.20	71.71	28.68	36.71
	6.00	3.00	1.783	0.00	27	19	13.93	5.80	4.68	71.63	28.65	39.35
	7.50	3.00	1.783	0.00	27	19	13.93	5.80	4.68	87.04	34.82	48.19
	9.00	3.00	1.783	0.00	27	19	13.93	5.80	4.68	102.44	40.98	57.02
	10.50	3.00	1.783	0.00	28	20	14.83	6.40	5.39	132.85	53.14	71.86
	12.00	3.00	1.783	0.00	28	20	14.83	6.40	5.39	150.18	60.07	81.47
	13.50	3.00	1.783	0.00	28	20	14.83	6.40	5.39	167.51	67.00	91.07
	15.00	3.00	1.783	0.00	28	20	14.83	6.40	5.39	184.84	73.94	100.68

Where: -

Note: Φ - Angle of Internal Resistance
 N_c - N_q - N_γ - Bearing Capacity Factor
 W - Water Table Correction Factor
 Q_{nf} - Net Ultimate Bearing Capacity
 Q_{ns} - Net safe Bearing Capacity
 Q_s - Safe Bearing Capacity

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

Table No. - 2
Safe Bearing Capacity 25 mm Settlement Criteria (Width = 3.00 m)

B.H.	Depth (meter)	Avg. Bulk Density (gm/cc)	'N'	N'	Qns (T/m ²)	Qs (T/m ²)
1	1.50	1.791	12	17	13.48	16.17
	3.00	1.791	13	16	12.72	18.09
	4.50	1.791	17	18	14.33	22.39
	6.00	1.791	24	23	18.90	29.65
	7.50	1.791	26	23	18.90	32.33
	9.00	1.791	32	27	24.98	41.10
	10.50	1.791	39	31	28.57	47.38
	12.00	1.791	45	34	32.47	53.96
	13.50	1.791	>50	35	33.78	57.96
15.00	1.791	>50	34	32.47	59.34	
2	0.75	1.778	6	10	6.76	8.09
	2.25	1.778	9	12	8.20	12.20
	3.75	1.778	14	16	12.72	19.39
	5.25	1.778	19	19	15.29	24.62
	6.75	1.778	23	22	17.79	29.79
	8.25	1.778	29	25	22.03	36.70
	9.75	1.778	37	30	27.78	45.12
	11.25	1.778	41	32	29.41	49.41
	12.75	1.778	>50	36	34.48	57.15
14.25	1.778	>50	35	33.78	59.12	
3	1.50	1.783	11	16	12.72	15.39
	3.00	1.783	14	17	13.48	18.83
	4.50	1.783	16	17	13.48	21.50
	6.00	1.783	23	22	17.79	28.49
	7.50	1.783	27	24	20.11	33.48
	9.00	1.783	34	29	27.03	43.08
	10.50	1.783	40	32	29.41	48.13
	12.00	1.783	47	35	33.78	55.18
	13.50	1.783	>50	35	33.78	57.85
15.00	1.783	>50	34	32.47	59.22	

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

9.0 Allowable Bearing Capacity

Considering the proposed structure and taking in to account the 'N' value an allowable settlement of **25 mm** has been adopted for evaluating the net allowable bearing capacity based on the settlement criterion.

Average shear strength parameters have been used for calculating safe bearing capacity from shear failure criterion, lower of the two values obtained from settlement and shear failure criteria is used in arriving at net allowable bearing capacity of the soil, as shown in Table – 1

10.0 Recommendation

Table No. – 3 Safe Bearing Capacity (Minimum of Three Boreholes)

Depth (meter)	Safe Bearing Capacity (T / m ²)		Recommended Safe Bearing Capacity (T / m ²)
	Settlement Criteria	Shear Failure Criteria	
0.75	8.09	7.53	7.0
1.50	15.39	12.84	12.0
2.25	12.20	17.21	12.0
3.00	18.09	21.68	18.0
3.75	19.39	26.02	19.0
4.50	21.50	30.65	21.0
5.25	24.62	38.13	24.0
6.00	28.49	39.35	28.0
6.75	29.79	43.65	29.0
7.50	32.33	48.19	32.0
8.25	36.70	57.29	36.0
9.00	41.10	57.02	41.0
9.75	45.12	66.87	45.0
10.50	47.38	72.18	47.0
11.25	49.41	70.08	49.0
12.00	53.96	81.47	53.0
12.75	57.15	86.03	57.0
13.50	57.85	91.07	57.0
14.25	59.12	95.61	59.0
15.00	59.22	100.68	59.0

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



Recommendations:

- * The soil stratum at the site is consists of **Silty Sand with Gravel**.
- * SPT 'N' Value shows that soil stratum at this site is **loose** up to 6.00 m depth and **medium dense** afterwards.
- * **Rectangular, Square or Raft** foundation can be adopted.

For Shagun Arc Engineering Pvt. Ltd

(Authorized Signatory)

Remarks: -

1. Samples will be preserved in our laboratory for a period of 30 days only, from the date of issue of this report.
2. For any clarification please correspond within 30 days from issue this test report.

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

Annexure I

References:

(A) SHEAR FAILURE CRITERION

1. IS : 6403-1981

The following formulae have been used for calculating ultimate net bearing capacity as per IS: 6403-1981 and this is similar to one proposed by Vecic.

(a) In case of general shear failure -

$$q_{ul} = cN_c s_c d_c i_c + q(N_q - 1)s_q d_q i_q + 0.5 B_\gamma N_\gamma S_\gamma d_\gamma i_\gamma w'$$

(b) In case of local shear failure -

$$q'_{ul} = 0.67cN'_c s_c d_c i_c + q(N'_q - 1)s_q d_q i_q + 0.5 B_\gamma N'_\gamma S_\gamma d_\gamma i_\gamma w'$$

Where,

$N_c, N'_c, N_q, N'_q, N_\gamma, N'_\gamma$ = Bearing capacity factors

C = Unit Cohesion

B = Width of footing

S_c, S_q, S_γ = Shape factors

d_c, d_q, d_γ = Depth factors

i_c, i_q, i_γ = Inclination factors

W' = Correction factor for location for location of water table

Φ = Angle of internal resistance of soil

$\Phi' = \tan^{-1}(0.67 \tan \Phi)$

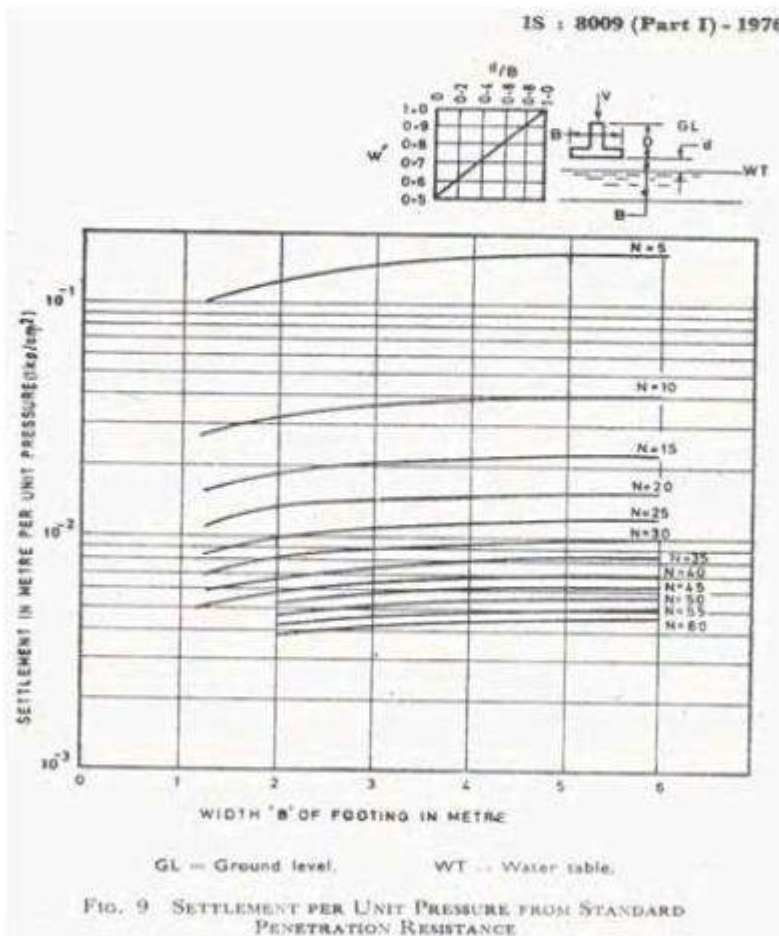
Note: - If the relative density is greater than 70% and the void ratio is less than 0.55, the shear failure is considered as General shear failure. On the other hand, if the relative density is smaller than 20% and the void ratio is greater than 0.75, the failure is local shear failure. For relative density between 20% and 70% and the void ratio between 0.55 to 0.75, the bearing capacity factors are obtained by interpolation between the general shear failure and local shear failure.

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

(B) SETTLEMENT CRITERION

As per IS : 8009 (Part-I)-1976

The safe bearing pressure can be calculated using readymade chart for any value of permissible settlement, given width of footing and corrected value. For this report, the settlement criterion is taken as 25 mm.

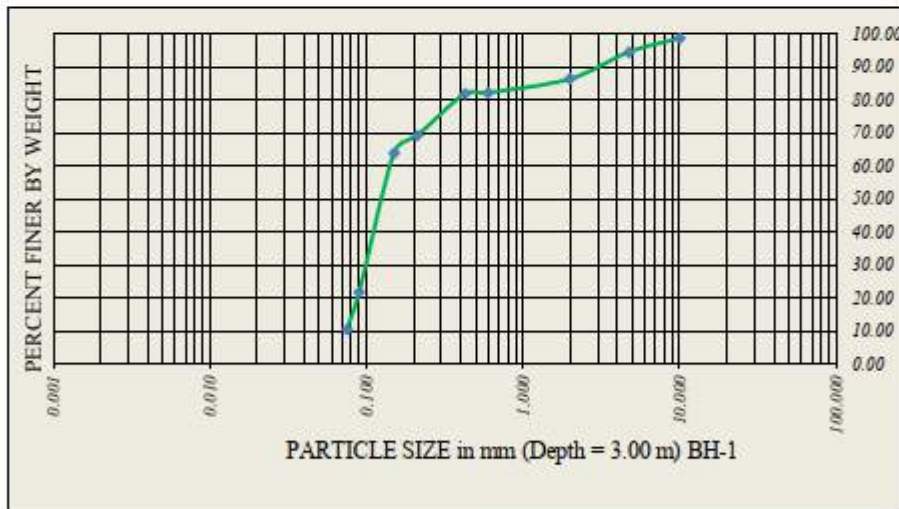
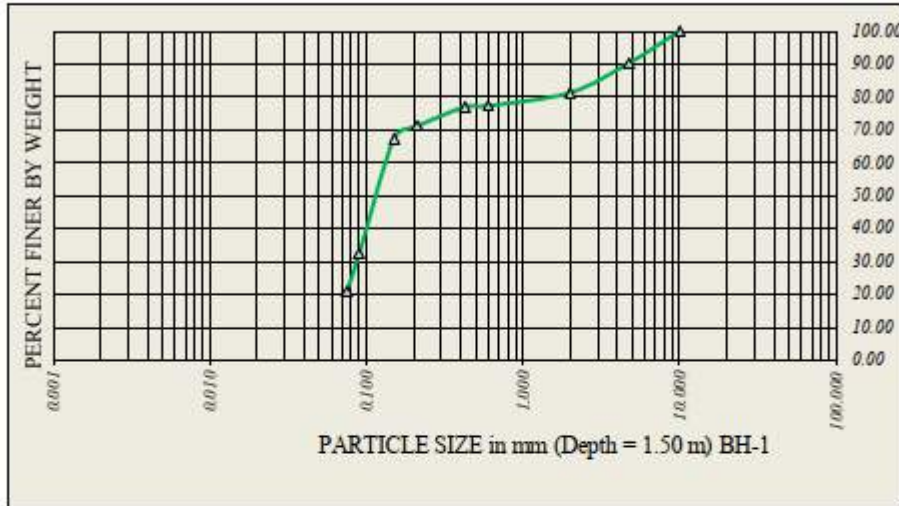


Settlement Criteria

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

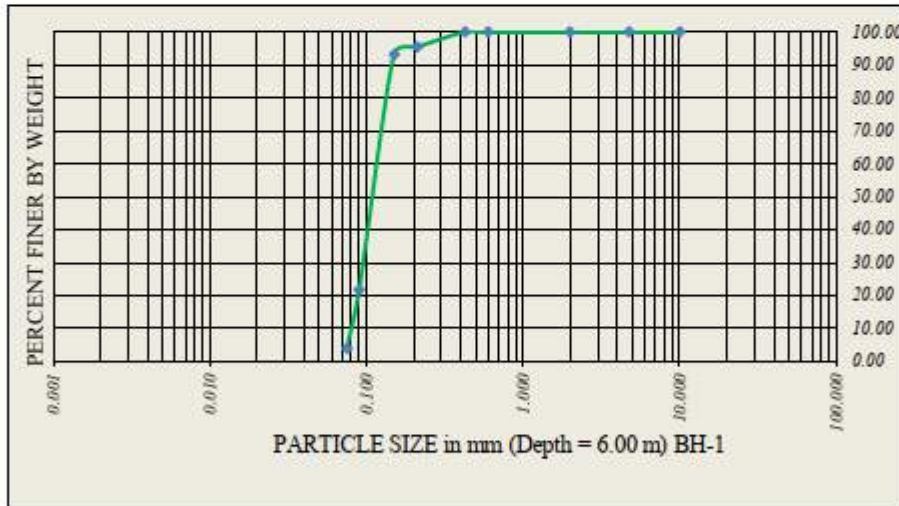
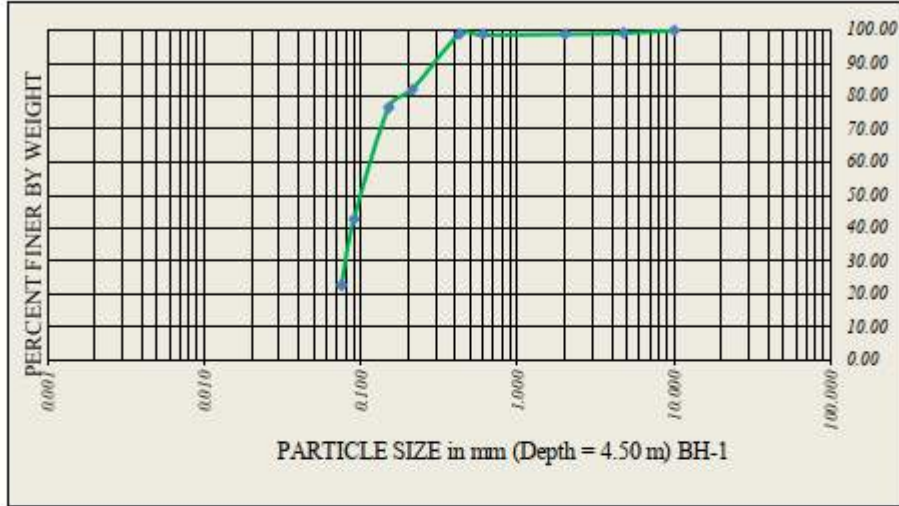
Annexure II

Grain Size Distribution Curve:



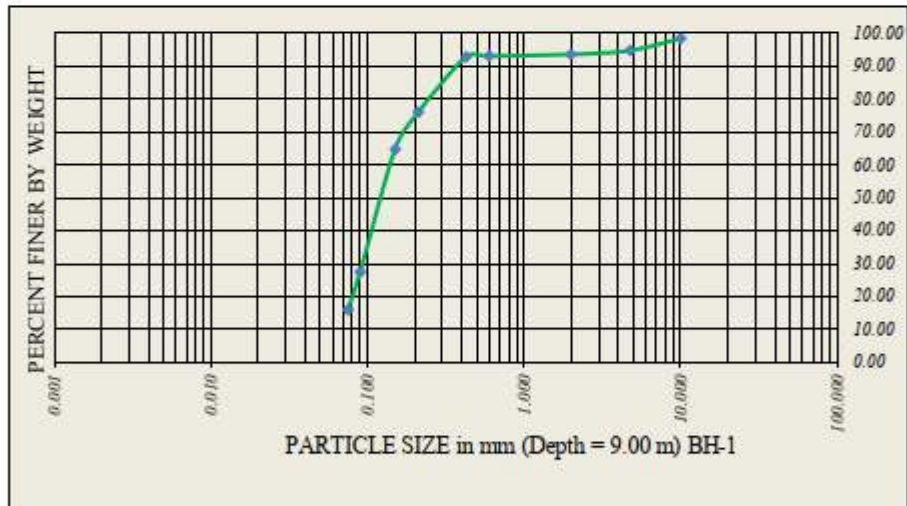
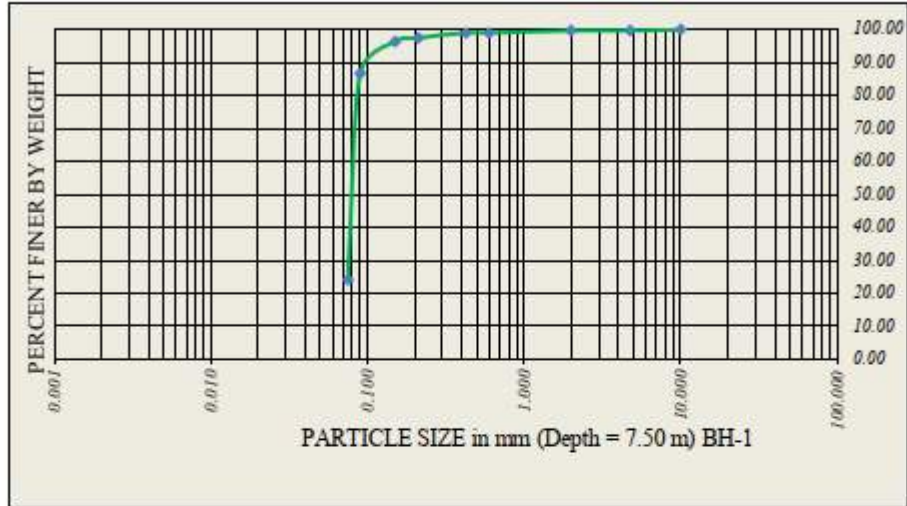
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Grain Size Distribution Curve:



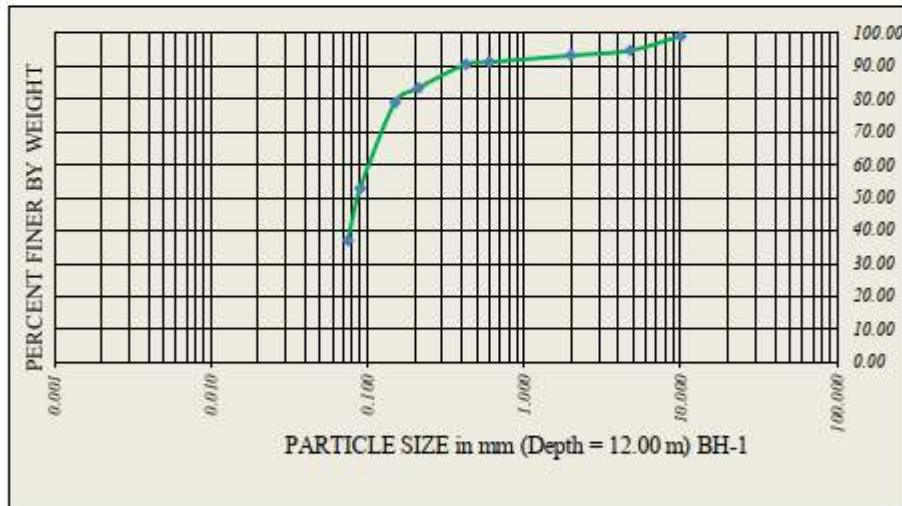
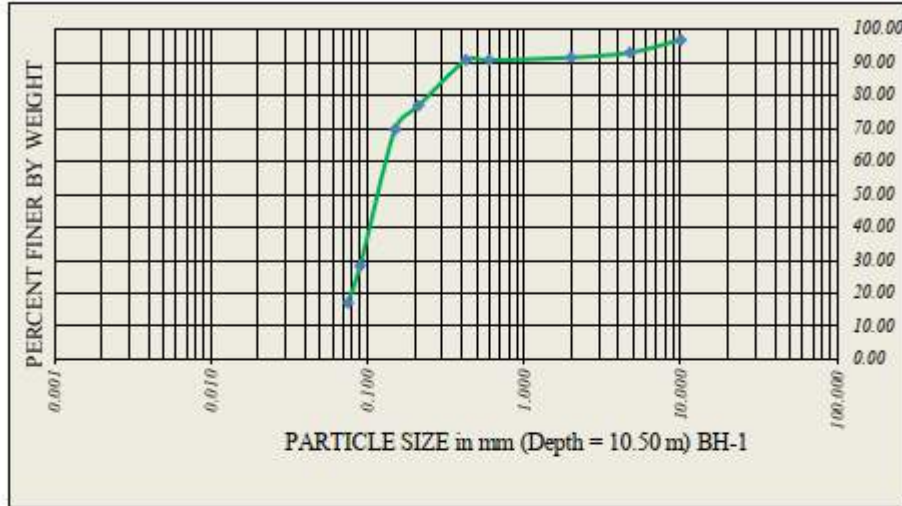
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Grain Size Distribution Curve:



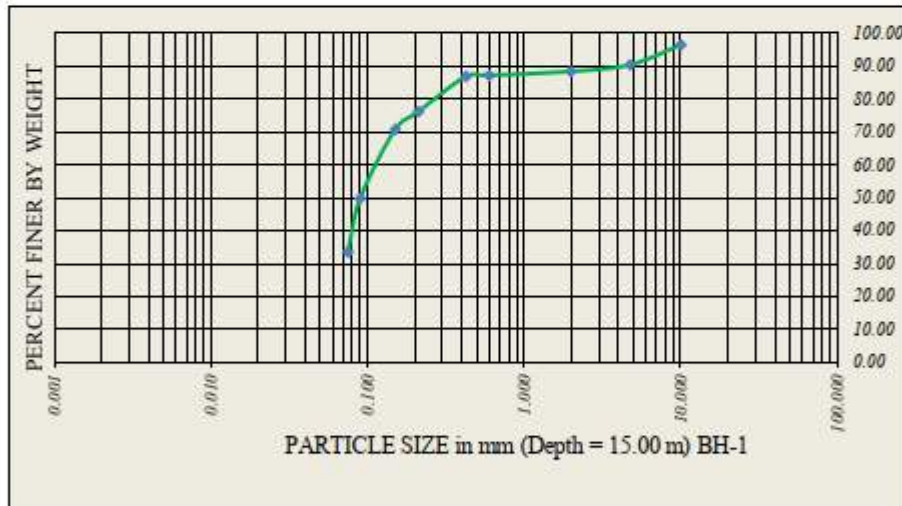
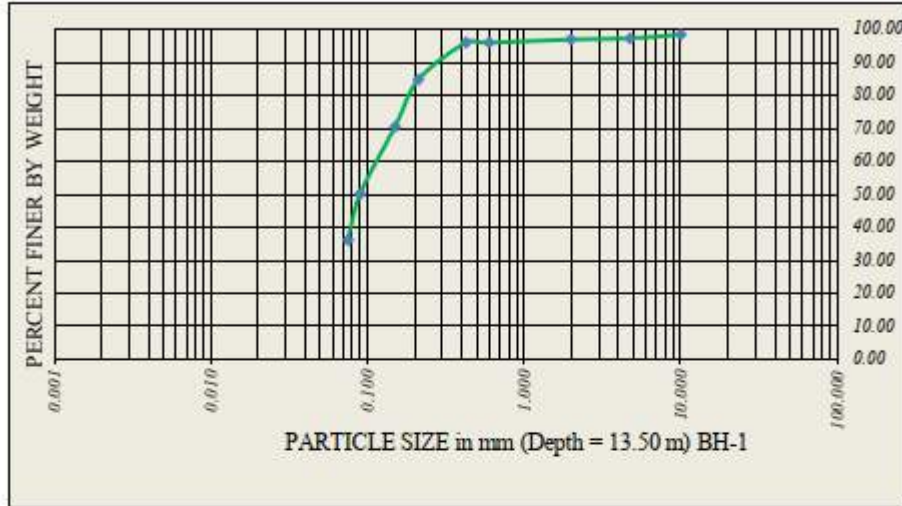
(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

Grain Size Distribution Curve:



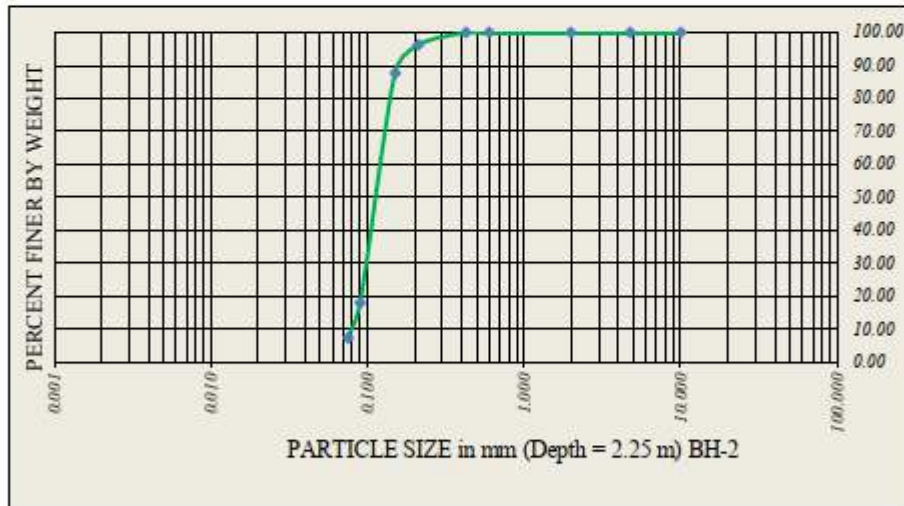
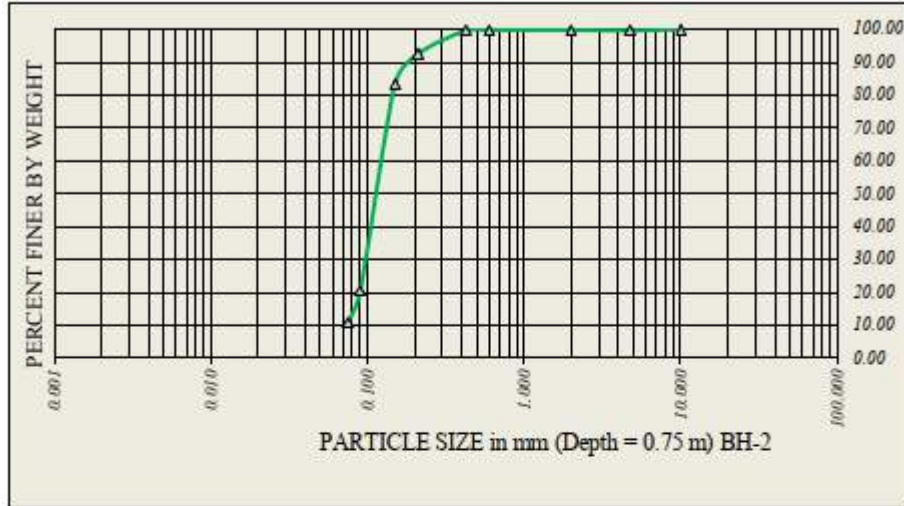
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Grain Size Distribution Curve:



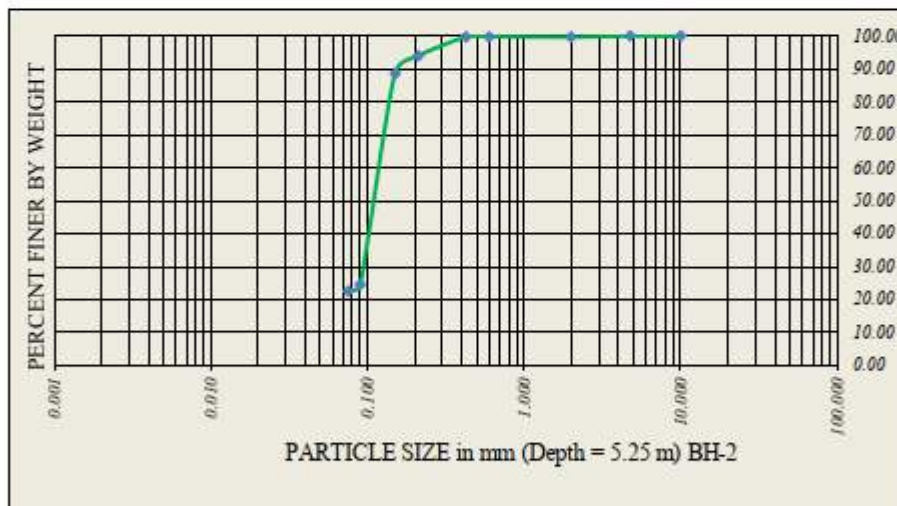
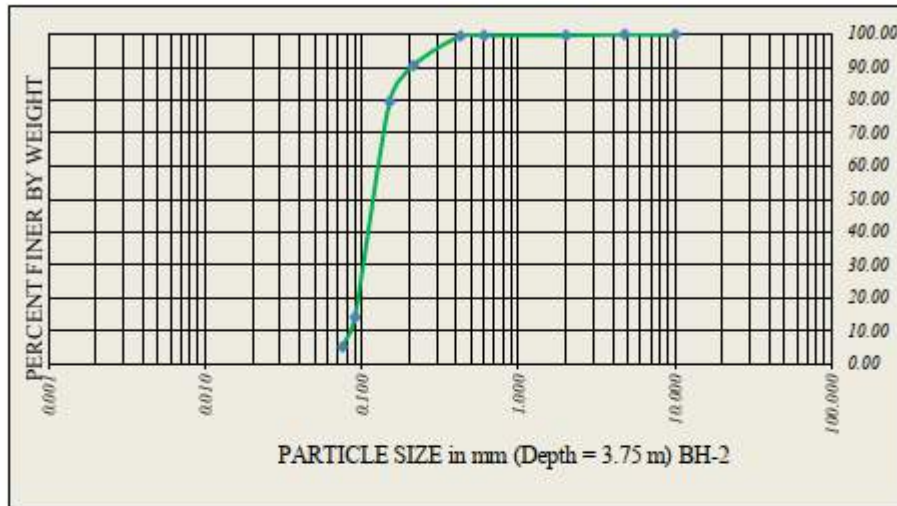
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Grain Size Distribution Curve:



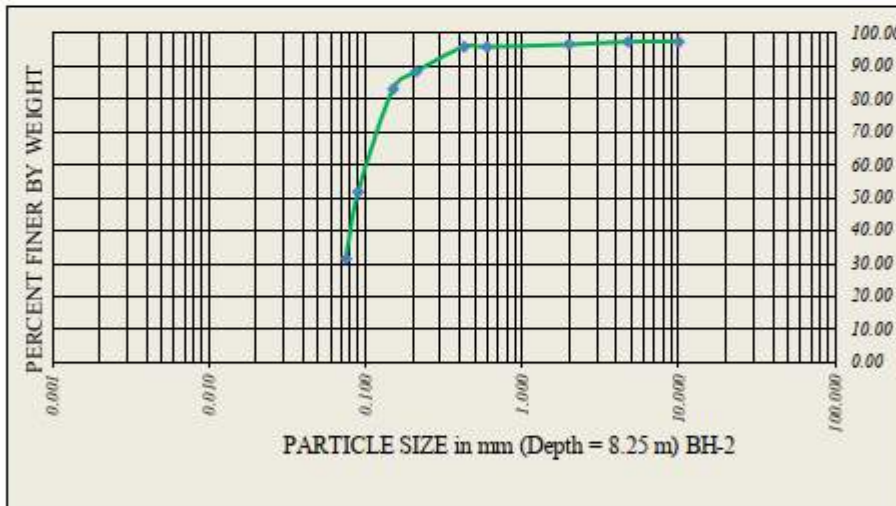
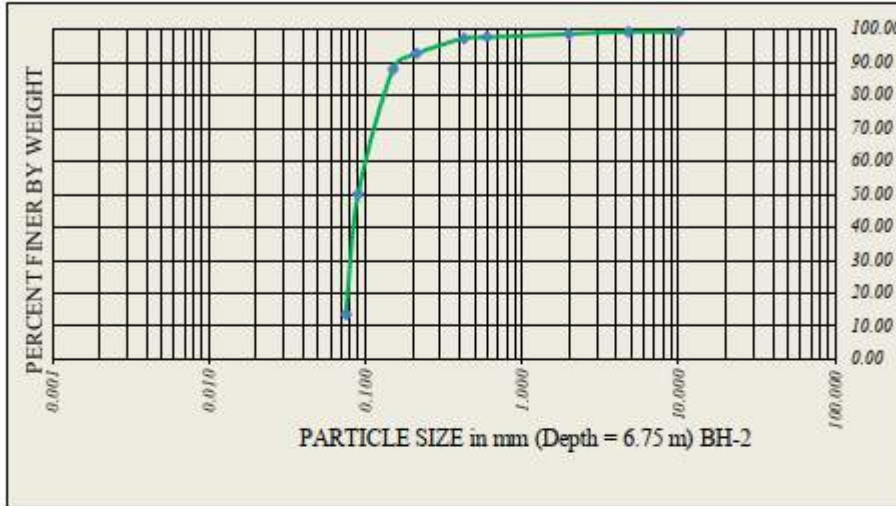
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Grain Size Distribution Curve:



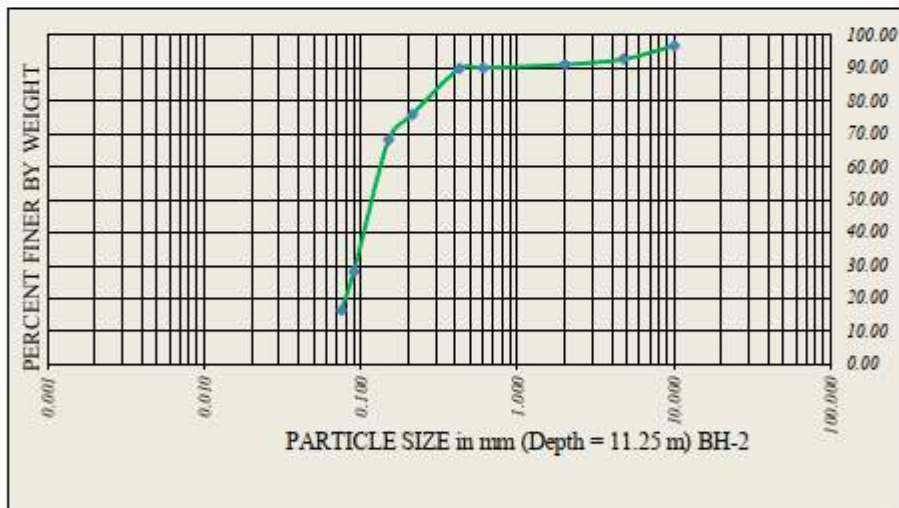
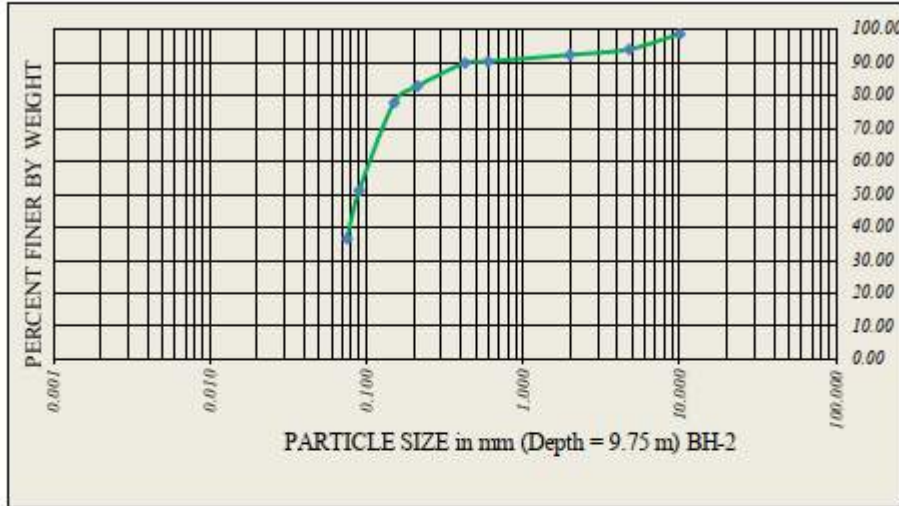
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Grain Size Distribution Curve:



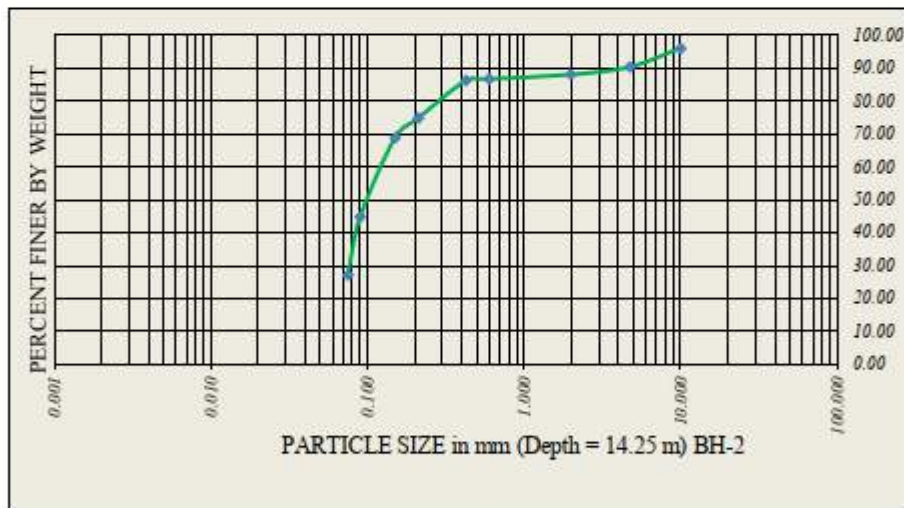
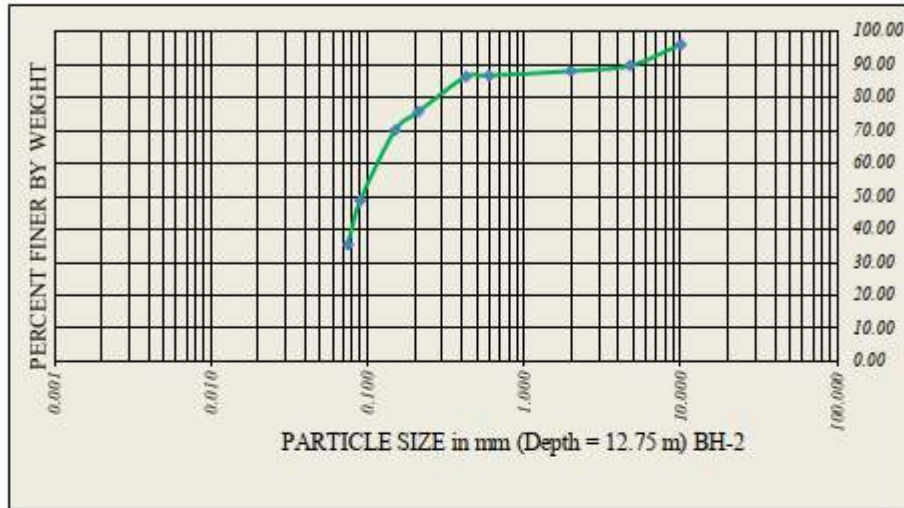
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Grain Size Distribution Curve:



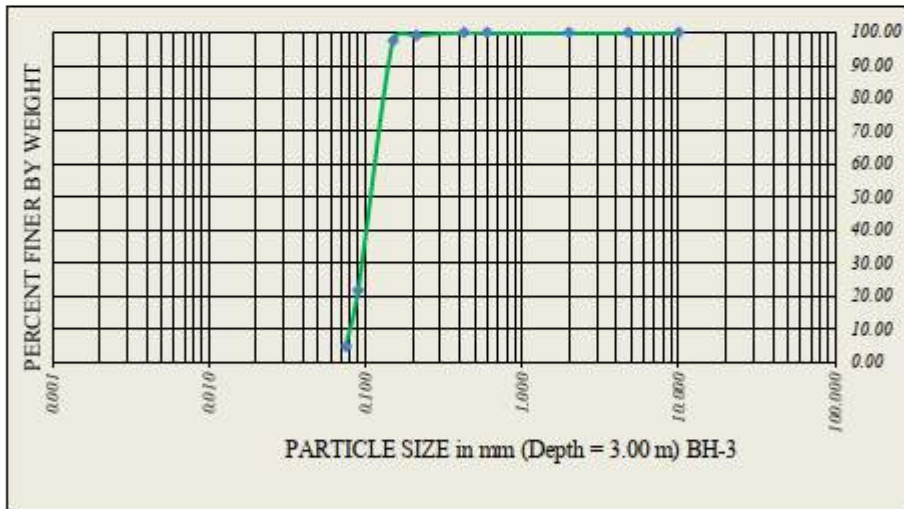
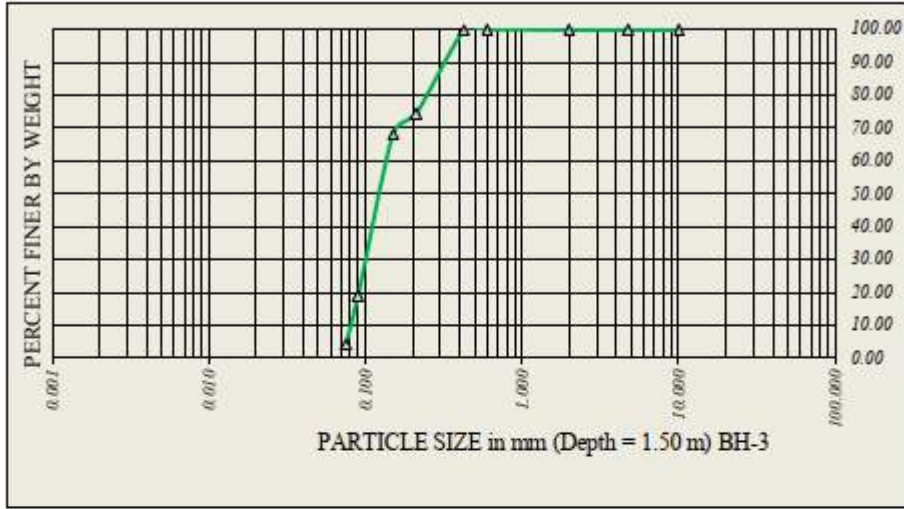
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Grain Size Distribution Curve:



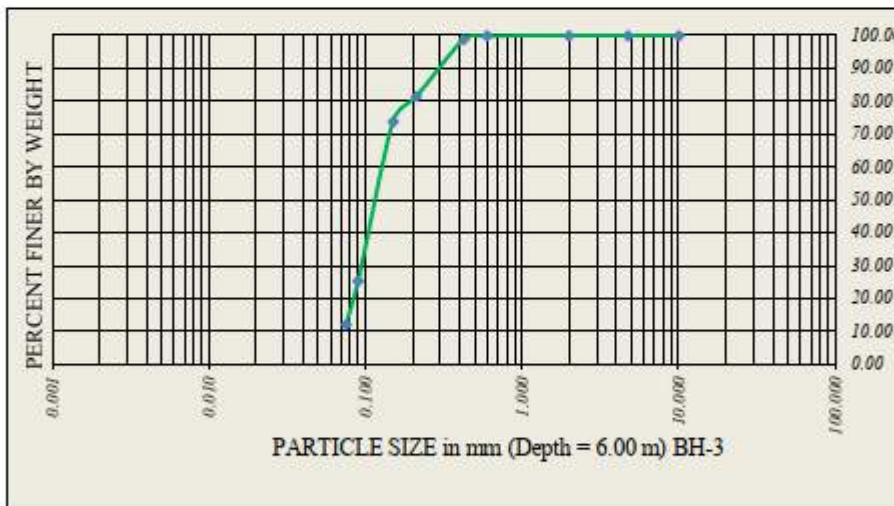
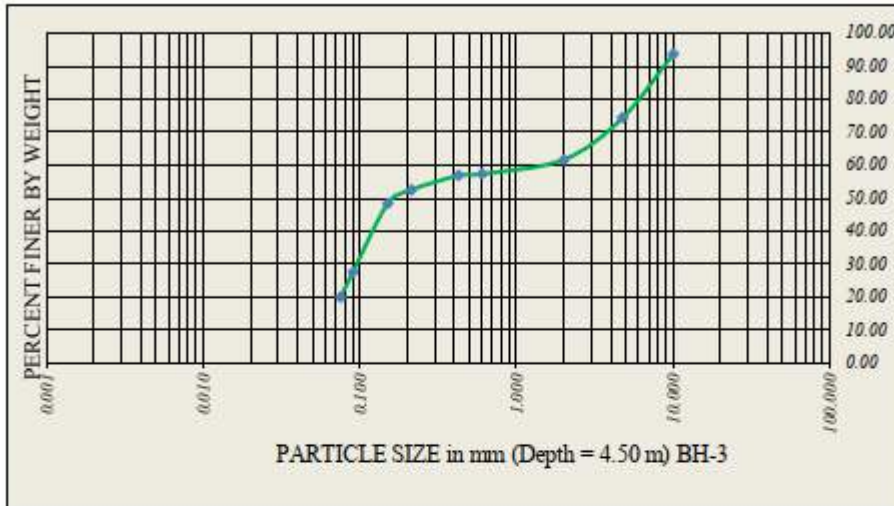
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Grain Size Distribution Curve:



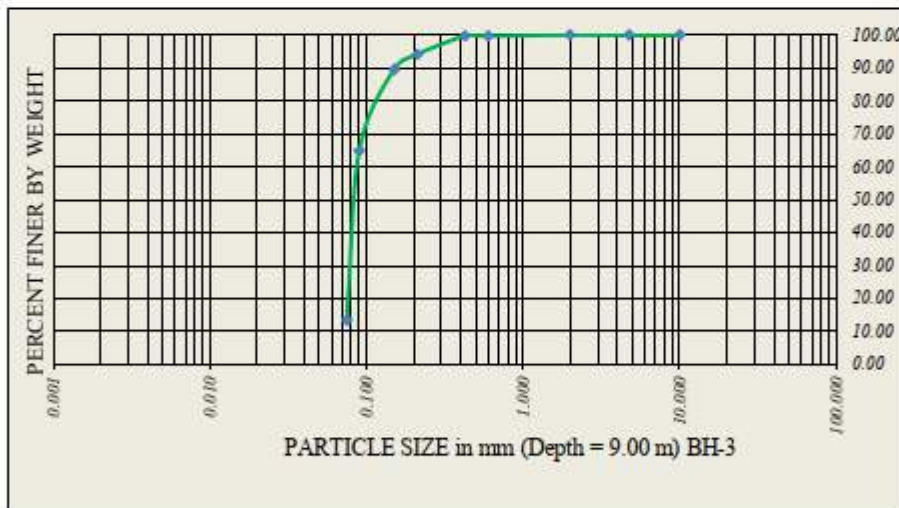
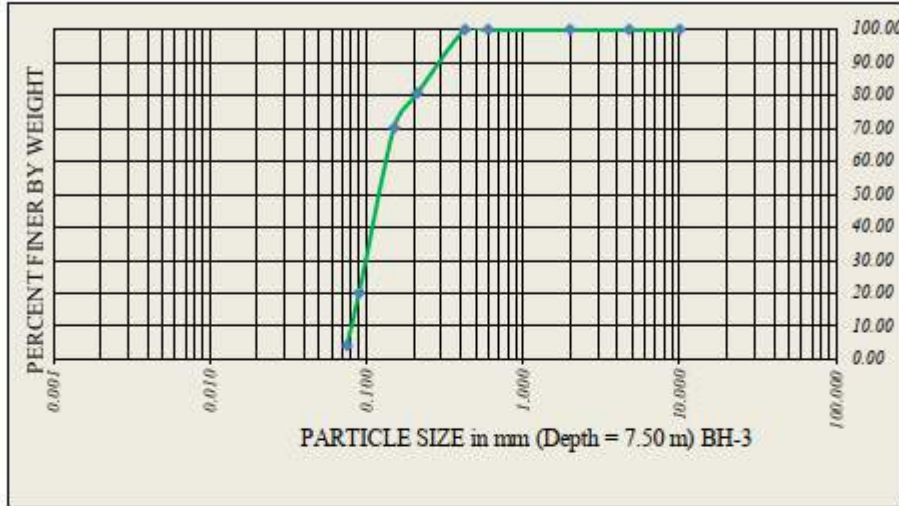
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Grain Size Distribution Curve:



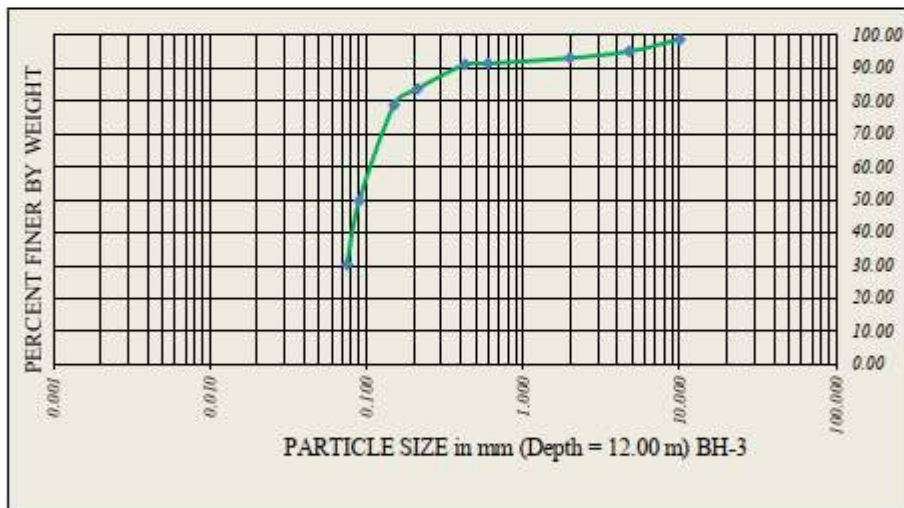
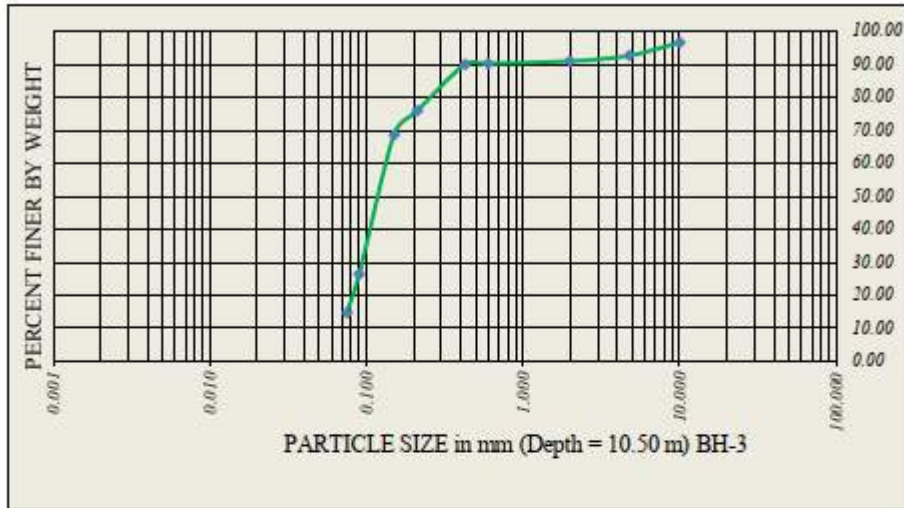
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Grain Size Distribution Curve:



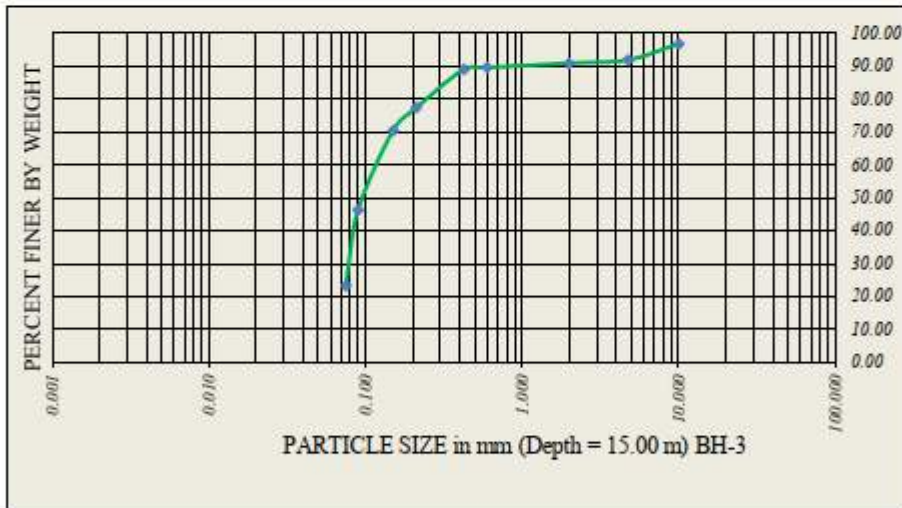
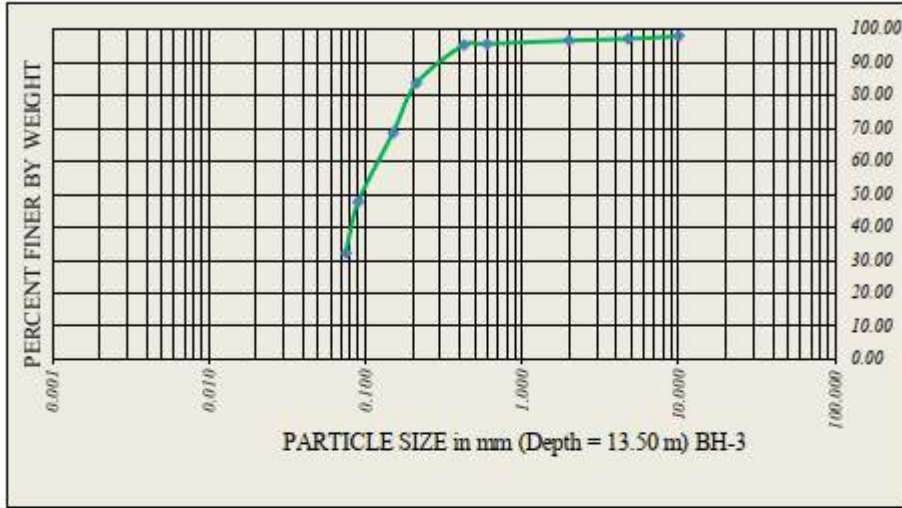
(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

Grain Size Distribution Curve:



(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

Grain Size Distribution Curve:



(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



Annexure III (RESULTS OF LABORATORY ANALYSIS)

Table No. – 1
Soil Properties for BH-1

S. No	Soil Property	Depth (meter) from Existing Ground Level										Remarks
		1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00	13.50	15.00	
1.	Gravel (%)	9.67	5.33	0.83	0.00	0.33	5.33	7.00	5.33	2.67	9.67	Silty Sand with Gravel
2.	Coarse Sand (%)	9.00	8.17	0.33	0.00	0.00	1.17	1.50	1.50	0.33	2.00	
3.	Medium Sand (%)	4.33	4.50	0.00	0.00	0.67	0.83	0.83	2.67	1.00	1.50	
4.	Fine Sand (%)	56.17	71.50	76.17	96.00	75.00	76.67	73.67	53.50	59.83	53.33	
5.	Clay & Silt (%)	20.83	10.50	22.67	4.00	24.00	16.00	17.00	37.00	36.17	33.50	
6.	Liquid Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
7.	Plastic Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
8.	Plasticity Index (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
9.	Sp. Gravity	2.70	2.68	2.69	2.67	2.69	2.70	2.70	2.72	2.71	2.72	
10.	Avg. Bulk Density (gm/cc)	1.791	1.791	1.791	1.791	1.791	1.791	1.791	1.791	1.791	1.791	
11.	Natural Moisture Content (%)	4.51	5.26	5.43	5.54	5.62	5.63	5.72	5.80	5.91	6.17	
12.	Cohesion (T/m ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13.	Angle of Internal Friction (Φ°)	28	28	27	27	27	28	28	28	28	28	
14.	SPT 'N' Value	12	13	17	24	26	32	39	45	>50	>50	

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



Table No. – 2
Soil Properties for BH-2

S. No	Soil Property	Depth (meter) from Existing Ground Level										Remarks
		0.75	2.25	3.75	5.25	6.75	8.25	9.75	11.25	12.75	14.25	
1.	Gravel (%)	0.33	0.00	0.00	0.00	0.67	2.67	6.00	7.33	10.33	9.67	Silty Sand with Gravel
2.	Coarse Sand (%)	0.00	0.00	0.33	0.33	0.67	0.83	1.67	1.67	1.67	2.33	
3.	Medium Sand (%)	0.00	0.00	0.17	0.00	1.33	0.67	2.50	1.17	1.67	1.83	
4.	Fine Sand (%)	89.00	92.67	94.33	77.17	83.83	64.33	53.33	73.33	51.00	59.00	
5.	Clay & Silt (%)	10.67	7.33	5.17	22.50	13.50	31.50	36.50	16.50	35.33	27.17	
6.	Liquid Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
7.	Plastic Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
8.	Plasticity Index (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
9.	Sp. Gravity	2.68	2.67	2.67	2.70	2.68	2.71	2.72	2.70	2.72	2.71	
10.	Avg. Bulk Density (gm/cc)	1.778	1.778	1.778	1.778	1.778	1.778	1.778	1.778	1.778	1.778	
11.	Natural Moisture Content (%)	4.41	5.20	5.45	5.52	5.56	5.69	5.78	5.84	5.89	6.12	
12.	Cohesion (T/m ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13.	Angle of Internal Friction (Φ°)	26	27	27	28	27	28	28	27	28	28	
14.	SPT 'N' Value	6	9	14	19	23	29	37	41	>50	>50	

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



**Table No. – 3
Soil Properties for BH-3**

S. No	Soil Property	Depth (meter) from Existing Ground Level										Remarks
		1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00	13.50	15.00	
1.	Gravel (%)	0.00	0.00	25.67	0.33	0.00	0.00	7.33	5.00	2.83	8.17	Silty Sand with Gravel
2.	Coarse Sand (%)	0.00	0.00	12.67	0.00	0.00	0.00	1.67	2.00	0.50	1.00	
3.	Medium Sand (%)	0.33	0.00	4.83	1.00	0.00	0.33	1.00	2.00	1.33	1.83	
4.	Fine Sand (%)	95.50	95.17	37.00	86.67	95.83	86.17	75.33	60.67	63.17	65.67	
5.	Clay & Silt (%)	4.17	4.83	19.83	12.00	4.17	13.50	14.67	30.33	32.17	23.33	
6.	Liquid Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
7.	Plastic Limit (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
8.	Plasticity Index (%)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	
9.	Sp. Gravity	2.67	2.67	2.74	2.68	2.67	2.68	2.70	2.71	2.71	2.72	
10.	Avg. Bulk Density (gm/cc)	1.783	1.783	1.783	1.783	1.783	1.783	1.783	1.783	1.783	1.783	
11.	Natural Moisture Content (%)	4.55	5.43	5.53	5.57	5.69	5.76	5.79	5.84	5.98	6.24	
12.	Cohesion (T/m ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13.	Angle of Internal Friction (Φ°)	27	27	30	27	27	27	28	28	28	28	
14.	SPT 'N' Value	11	14	16	23	27	34	40	47	>50	>50	

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



Annexure III (Site Photographs)



Fig: Conducting Standard Penetration Test at Site

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



ShagunArc Engineering Pvt. Ltd.

H/O: 41 LG-1, Ground Floor, Shiv Apartment, Shiv Vihar, Patarkar Colony, Mansarovar, Jaipur-302020 • Raj.
Telephone: +91 141 4820399 • Mobile: +91 9414042660, +91 9928010559
E-Mail: shagun.santosh@gmail.com • Website: www.shagunarc.com



Latitude: 26.832637
Longitude: 75.783741
Elevation: 410.19+42 m
Accuracy: 6.7 m
Time: 01-22-2023 12:16
Note: RIICO Fintech Park Tonk Road Jaipur



Latitude: 26.83305
Longitude: 75.783718
Elevation: 402.58±21 m
Accuracy: 11.7 m
Time: 01-20-2023 14:30
Note: RIICO Fintech Park Tonk Road Jaipur

Conducting SPT Test at Site

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)



Fig: Collection of Soil Samples at Site (DS & UDS)

(Site Location: - Construction site of Building at Fintech Park, RIICO Tonk Road, Jaipur Rajasthan)

4. Land Border Rule

The Rajasthan Transparency in Public Procurement Rules, 2013

Order No.F.2(1)FD/G&T-SPFC/2017

dated : 30.3.2021

Subject : Regarding Mandatory Prior registration of bidders from the countries sharing land border with India-Restrictions under Rule 13 of the RTPP Act.

Attention is invited to the FD's Order of even number dated 15.01.2021 vide which detailed procedure of prior registration in relation to bidders from the countries sharing land border with India was laid down. In accordance with clarifications issued by Government of India, following amendments are made in the referred order :-

1. Notwithstanding anything contained therein, it is hereby clarified that the said Order will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects.

2. To ensure availability of raw material or components/sub-assemblies of the finished goods etc. with the bidders, from the vendors sharing land border with India. In this context following is hereby clarified :

- i. A bidder is permitted to procure raw material, components, sub-assemblies etc. from the vendors from countries which shares a land border with India. Such vendors will not be required to be registered with the Competent Authority, as it is not regarded as "sub-contracting".
- ii. However, in case a bidder has proposed to supply finished goods procured directly/indirectly from the vendors from the countries sharing land border with India, such vendor will be required to be registered with the Competent Authority.

3. Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorized agents, shall be exempted from the requirement of registration as mandated under Rule 13 of the RTPP Rules, 2013 and orders issued in this regard.

Joint Secretary to the Government.

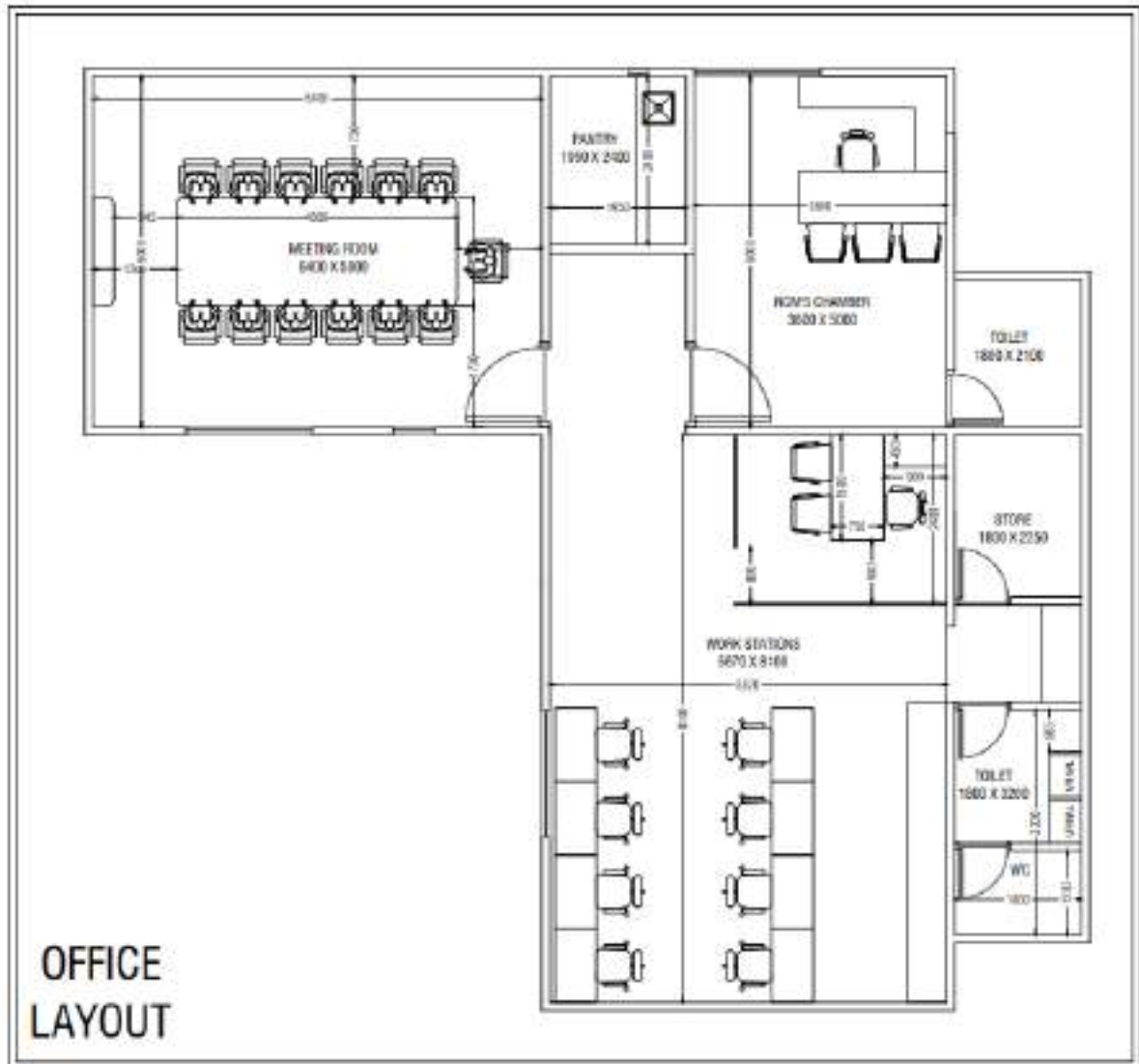
Circular No.F.2(4)FD/SPFC/2017

Jaipur, dated : 31.03.2021

Subject :- Revision in the rates in respect of hiring of vehicles.

Refer to the Circular of even number dated 19.07.2018 & 28.02.2019 issued by department regarding hiring of vehicles. The maximum ceiling of expenditure prescribed in existing point No. 2(i), (ii), (iii) and (iv) of this circular are hereby revised as under :-

5. EIL Office Layout



6. Technical Specification for Specialized Designer Interior & Modular Furniture

24.1. Modular Rigid PVC/Polyolefin Metal Panelling (Refer BOQ 12 Item No. 2)



1. Factory-made removable type self-inter-lockable metal panels with a front sheet of preformed textured hot-dip galvanized sheet with rigid polyvinylchloride (PVC) film/Polyolefin film on one side and on the other side a coating to avoid rust (sheet thickness 0.6mm). The panelling design shall comprise of a specially designed combination of perforated and non-perforated panels through CNC laser cutting, bending & punching. The panelling/partition shall be Greenguard gold certified/tested (from UL/Intertek). Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals. Panels shall be designed to achieve shape and design as per the design consultant and shall be fixed using GI/CRCA hook fitting on the structure. Overall system thickness for panelling shall be 60mm to 90mm and for partition shall be 70mm to 120mm.
2. The panel shall comprise of perforation for making the cladding and partitions acoustically sound.
3. Tiles Perforation – To achieve acoustics without deteriorating the aesthetical appeal of the office room interior it is necessary that the at-least twenty five percent of the wall panelling tiles have micro-perforations (less than 1.6mm dia. each) all over the surface with a density of 5000 holes per square feet. This feature shall be audit certified (from UL/Intertek) on modular wall panelling tile to have clean perforations and providing smooth finish on the front fascia of tiles. The tile shall have 5000 holes per square feet on the front side of the tile. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.

4. As per the design, the panel shall comprise of perforation for making panelling and partitions acoustically sound. Acoustic grade fire retardant fabric (minimum 1mm thick) will be fixed (on the backside of perforated tiles) at some parts of the office room facility.
5. There shall be the possibility of a wide variety of colours and images to be used on the wall elements to give the aesthetic and state of the art look to the office interior. ACP (Aluminum Composite Panels) shall be deemed unacceptable.
6. The structure shall allow an uninterrupted flow of wires/cable/tubes of a maximum diameter of 25mm.
7. The panel shall be designed in such a manner that it takes care of the undulation of walls and gives perfect flat surface finish and compile easy service & maintenance procedure.
8. To provide an acoustically superior environment and ensure proper attenuation of airborne sound, it is necessary that the sound transmission class (STC) value of wall panelling and the partition shall be minimum 35 (According to IS: 9901 (Part III) – 1981, DIN 52210 Part IV- 1984, ISO: 16283 (Part I) - 2014. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
9. Seismic safety of user & equipment is a prime concern area. The metal panelling/partition shall sustain the seismic vibrations as per design spectrum IS 1893 for zone 2 vibrations. The test shall be carried out by an authorized government agency. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
10. The wall panelling shall be robust & strong enough to sustain the routine loads/minor impacts of a typical office room environment. The wall panelling/partition structure shall have audit certified design feature (from UL / Intertek) of Load-bearing capacity of 300 Kgs to hold any display unit on clamp having a minimum length of 750mm. The necessary certificate / test reports should be submitted at the time of approvals.
11. Audit certified design feature (from UL / Intertek) of modular wall panelling tile having secure locking arrangement for equidistant mounting. Locking arrangement enables easy replacement without using any tool within 20 seconds. The feature shall provide easy flexibility of locking all tiles in one column through gravity. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
12. The modular metal panelling shall comply to the lead-free directive to ensure restriction of hazardous substances so that the final product does not contaminate the environment. The final product i.e., modular metal panelling does not contain hazardous substances and we give a healthy life to our coming generations it is necessary that the modular metal panelling system shall be RoHS

certified/tested (from UL / Intertek). Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.

13. From fire safety point of view the metal wall panelling tiles shall be class A fire rated as per the norms of comparative measurements of surface flame spread and smoke density measurements with that of select grade red oak and fiber-cement board surfaces under the specific fire exposure conditions. The proposed wall panelling tiles shall be class A certified/tested as per ASTM e84 (from UL / Intertek) for surface spread of flame and smoke generation. This is mandatory to ensure that the materials used in the interiors do not provoke fire. The necessary certificate / test reports should be submitted at the time of approvals.

24.1.1. Design

1. The front tile (PVC/Polyolefin pre-coated metal sheet) shall be perforated/ non-perforated as per the design requirement. These tiles shall be bent through CNC, machine punched & laser Cut to achieve perfect accuracy.
2. The structure shall be made from a modular, heavy-duty powder-coated CRCA/GI frame (minimum sheet thickness 1mm) and shall allow an uninterrupted flow of wires/cable/tubes of maximum diameter 25mm.
3. The structure shall be securely connected from wall, roof and floor. It shall be made up of a minimum of 1mm thick vertical upright. Grid of the desired dimension shall be formed.

24.1.2. Surface Finish

24.1.2.1. For Panels

1. Front Panel: PVC /Polyolefin pre-coated GI sheet (sheet thickness: 0.6mm and coating thickness: at least 0.11mm)

24.1.3. Structure

1. Powder-coated CRCA sheet / GI Pipe (Sheet thickness minimum 1.6mm)
2. The tile sheet shall have the possibility of being formed mechanically per the specific needs of the project. The tile shall have backing of cement fiber board / polystyrene.

24.1.4. Material Selection

1. Available Width- 100mm to 1200mm (in multiples of 100 & 150mm).
2. Available Height- 100mm to 750mm (in multiples of 100 & 150mm).
3. Thickness- minimum 10mm for perforated tiles with acoustic fleece.
4. Minimum 25mm for perforated/non-perforated tiles.

24.1.5. Material Testing/Certification

24.1.5.1. PVC/ Polyolefin pre-coated sheet

1. Fire rating and Low flame spread: EN ISO 11925-2, EN 13823 and ASTM e-84

24.1.5.2. Powder coating

1. Adhesion test: EN ISO 2409 / ASTM: D 3359
2. Impact resistance test: ASTM D 2794 (5/9' ball)
3. Conical Mandrel test: ASTM D522
4. Salt spray test: 1000 hours as per ASTM B117
5. Resistance to humid atmosphere test as per ISO 6270

24.1.6. Component Specification

24.1.6.1. Floor Mounting

1. I-section / C-Section made from minimum 1.6mm thick C channels, Sections shall be grouted on the floor with the help of M8/10 Anchor Fasteners.
2. These
3. Bidder shall ensure proper laser marking and levelling before proceeding with any floor grouting.

24.1.6.2. C Section (Upright) fixing

1. 40mm wide rolled section (UPRIGHT) (1.6 mm thick powder coated CRCA / GI sheet).
2. These uprights shall be mounted over the floor section mountings
3. The installation to be carried out with Uprights spaced at 1200mm (centre to centre) securely fixed to the floor
4. The uprights shall be firmly held with L-shaped wall mounts made up of a minimum 1.6mm thick CRCA steel sheet duly powder coated.
5. The L clamp and the upright will be bolted together with M6 bolts.
6. End Cap
7. Minimum 0.7mm thick PVC / Polyolefin Coated GI tile; (similar to panel tile) shall be bolted on the extreme end-uprights, Corners to hide the grid structure.

24.1.7. Panel

1. The panels shall be fixed on the uprights.

24.1.8. Door Profile

1. The door frame shall be fixed with these profiles only to have proper integration of doors with the overall system.

24.1.9. Feature

1. Raw material for tile & powder coating shall not affect the environment.
2. Easy and quick installation
3. Low cleaning effort
4. Vendor to demonstrate one portion at wall panelling & ceiling at their premises before dismantling & shipping to site. In short, a FAT (Factory acceptance test) to be carried out at vendors works for ceiling & panelling
5. 100 % modular design
6. The tile shall be bend resistant.

24.2. Modular Metal Hexagonal Paneling (Refer BOQ 12 Item No. 3)



1. The material of construction and technical specification shall remain the same as per modular rigid PVC/Polyolefin metal panelling (Sr No. 1 modular rigid PVC/Polyolefin metal panelling) however in the front tiles shall have hexagonal shape and the tile's periphery shall be made up of metal sections.
2. The structure shall allow an uninterrupted flow of wires/cable/tubes of a maximum diameter of 25mm.
3. The panel shall be designed in such a manner that it takes care of the undulation of walls and gives perfect flat surface finish and compile easy service & maintenance procedure.

24.3. Modular Printed Metal Paneling (Refer BOQ 12 Item No. 4)



1. The printed panelling shall have the same technical specifications as that of acoustic metal panelling (Wall Finishing - Sr No. 1 modular rigid PVC/Polyolefin metal panelling). However, in addition to it, the front tile shall be digitally printed. Graphics shall be approved by the Customer.
2. Digital printing shall be done on modular metal Panelling. Pasting stickers/flex/vinyl on metal tile shall be deemed unacceptable.
3. The structure shall be made from a modular, heavy-duty powder-coated CRCA frame (minimum sheet thickness 1mm) and shall allow an uninterrupted flow of wires/cable/tubes of maximum diameter 25mm.
4. The structure shall be securely connected from the wall, roof and floor. It shall be made up of a minimum of 1mm thick vertical slotted rolled C sections (Upright) and horizontal rolled 'C' connectors. Grid of the desired dimension shall be formed by Vertical and horizontal sections having 20 to 50mm pitch.
5. For Structure: - Powder coated CRCA steel sheet. (Sheet thickness minimum 1.0mm with powder coating).

24.4. PET Panelling (Refer BOQ 12 Item No. 5)



1. Computationally generated partition/paneling form made up of polyethylene terephthalate, the material shall be resistant to moisture. The elements shall be arranged in a defined pattern with proper spacing. The panels shall be fixed on bison board/painted walls/steel structure with appropriate fixing/installation method. The proposed acoustic panels shall be Greenguard Gold certified/tested (from UL/Intertek). The necessary certificate/test report valid on the bid date and to be submitted at the time of approval. The panels should be available in 9mm & 12mm thickness. Material NRC should range between NRC: 0.8 - 0.85.
2. To ensure restriction of hazardous substances; the acoustic panel/board shall be RoHS certified/tested (from UL/Intertek). The necessary certificate/test report valid on the bid date and to be submitted at the time of approval.

24.5. Modular rigid PVC/Polyolefin metal partition (Refer BOQ 12 Item No. 8)



1. The material of construction and technical specification shall remain the same as per modular rigid PVC/Polyolefin metal panelling (Sr No. 1 modular rigid PVC/Polyolefin metal panelling) however in partition the cladding shall be done on both side of the section/grid work.
2. The panel shall comprise of perforation for making the cladding and partitions acoustically sound.
3. Tiles Perforation – To achieve acoustics without deteriorating the aesthetical appeal of the office room interior it is necessary that the at-least twenty five percent of the wall panelling tiles have micro-perforations (less than 1.6mm dia. each) all over the surface with a density of 5000 holes per square feet. This feature shall be audit certified (from UL/Intertek) on modular wall panelling tile to have clean perforations and providing smooth finish on the front fascia of tiles. The tile shall have 5000 holes per square feet on the front side of the tile. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.

4. As per the design, the panel shall comprise of perforation for making panelling and partitions acoustically sound. Acoustic grade fire retardant fabric (minimum 1mm thick) will be fixed (on the backside of perforated tiles) at some parts of the building interiors.
5. There shall be the possibility of a wide variety of colours and images to be used on the wall elements to give the aesthetic and state of the art look to the building interior. ACP (Aluminum Composite Panels) shall be deemed unacceptable.
6. The structure shall allow an uninterrupted flow of wires/cable/tubes of a maximum diameter of 25mm.
7. The panel shall be designed in such a manner that it takes care of the undulation of walls and gives perfect flat surface finish and compile easy service & maintenance procedure.
8. To provide an acoustically superior environment and ensure proper attenuation of airborne sound, it is necessary that the sound transmission class (STC) value of wall panelling and the partition shall be minimum 35 (According to IS: 9901 (Part III) – 1981, DIN 52210 Part IV- 1984, ISO: 16283 (Part I) -2014. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
9. Seismic safety of user & equipment is a prime concern area. The metal panelling/partition shall sustain the seismic vibrations as per design spectrum IS 1893 for zone 2 vibrations. The test shall be carried out by an authorized government agency. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
10. The wall panelling shall be robust & strong enough to sustain the routine loads/minor impacts of a typical office room environment. The wall panelling/partition structure shall have audit certified design feature (from UL / Intertek) of Load-bearing capacity of 300 Kgs to hold any display unit on clamp having a minimum length of 750mm. The necessary certificate / test report to be submitted at the time of approval.
11. Audit certified design feature (from UL / Intertek) of modular wall panelling tile having secure locking arrangement for equidistant mounting. Locking arrangement enables easy replacement without using any tool within 20 seconds. The feature shall provide easy flexibility of locking all tiles in one column through gravity. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.
12. The modular metal panelling shall comply to the lead-free directive to ensure restriction of hazardous substances so that the final product does not contaminate the environment. The final product i.e., modular metal panelling does not contain hazardous substances and we give a healthy life to our coming generations it is necessary that the modular metal panelling system

shall be RoHS certified/tested (from UL / Intertek). Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.

13. From fire safety point of view the metal wall panelling tiles shall be class A fire rated as per the norms of comparative measurements of surface flame spread and smoke density measurements with that of select grade red oak and fiber-cement board surfaces under the specific fire exposure conditions. The proposed wall panelling tiles shall be class A certified/tested as per ASTM e84 (from UL / Intertek) for surface spread of flame and smoke generation. This is mandatory to ensure that the materials used in the interiors do not provoke fire. The necessary certificate / test reports should be submitted at the time of approvals.

24.6. Modular Fabric Partition (Refer BOQ 12 Item No. 9)



1. Flat fabric partition made up of a minimum 600mm wide by minimum 300mm high tiles fitted as per the acoustical requirement. Fabric Make: Response or equivalent.

24.7. Straight Modular Glass Partition Material (Refer BOQ 12 Item No. 10)



1. Full height glass partitions walls shall be made of minimum 10mm thick toughened glass. The glass shall be fixed using modular metal sections at top, bottom & sides. The section's size shall be

minimum 45 x 20mm and shall be installed on to the floor, wall and ceiling. The sections shall be used only on top, bottom, and extreme ends (adjacent to walls) only.

2. The glass partition shall be Greenguard Gold certified/tested (from UL/Intertek). The necessary certificate/test report should be valid on the bid date and to be submitted at the time of approval.

NOTE: - The nature of installation shall be replaceable, expandable and flexible to cater the future expansion/technical up-gradation.

3. The modular glass partition shall have below features:

- a. It shall be capable to accommodate horizontal/vertical raceways at any height (as instructed by EIC).
- b. The modular glass partition system shall have inbuilt feature to insert metal panel tiles as specified in sr. no. 1 (modular rigid PVC /Polyolefinmetal panelling). This is to ensure proper integrated look of glass partition with that of adjacent paneling system and meet acoustic requirements. The metal tiles shall have micro-perforations (less than 1.6mm diameter each) all over the surface with a density of 5000 holes per square feet. This feature shall be audit certified (from UL/Intertek) on modular wall paneling tile to have clean perforations and providing smooth finish on the front fascia of tiles. The necessary certificate / test reports should be submitted at the time of approvals.

24.8. Paint (Refer BOQ 12 Item No. 6)

1. Painting to new walls with 3 coats of plastic emulsion paint of approved brand and shade after thoroughly brushing the surface to remove all dirt and remains of loose powdered materials including cost and conveyance of all materials to work site and all operational, incidental, labour charges etc. complete for finished item of work over one coat of primer total 3 coats.

24.9. Wall Putty (Refer BOQ 12 Item No. 7)

1. Material for 1mm thick Putty on all exposed portions of beams, columns and walls as directed by the consultants including mixing, scraping, and levelling the surface, cleaning and complete in all respects to receive the paints & finishes.

24.10. 12mm thick frameless tempered clear glass door (Refer BOQ 12 Item No. 11)



1. With door spring and locking arrangements and both way handle and patch fittings.

24.11. Metallic Door (with OR without Vision Panel) (Refer BOQ 12 Item No. 12)



- With door hinges and locking arrangements and both way handle. Prepare with rigid thermo fused film metal panels. Specification: 0.6mm thick Metal panel sheets, internal cavity filled with adequate quantity of honeycomb. Material of the partition and that of metal door will remain the same. Material of the partition and that of metal door will remain the same. The door thickness shall be minimum 45mm and frame thickness shall be minimum 115mm.

24.12. Designer Metal Baffle Ceiling (Refer BOQ 12 Item No. 13)



1. The baffles shall be made up of CRCA powder coated sheet. These baffle planks shall be bent through CNC to have dimensions as 80X50mm or as per the design approval or as per EIC approval.
2. Centre to centre distance shall be minimum 150mm.
3. Designer metal baffle ceiling shall be Greenguard gold certified/tested (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
4. To ensure restriction of hazardous substances; so that the final product does not contaminate the environment and we give a healthy life to our coming generations it is necessary that the metal

ceiling system shall be RoHS certified/tested (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.

5. It is well known that metal is resistant to fire as compared to wood & fabric. However, from fire and safety point of view, to ensure that the used material is not subjected to any kind of surface treatment which provokes fire. The proposed ceiling tiles shall be class A certified/tested as per ASTM e84 (from UL / Intertek) for surface spread of flame and smoke generation. This is mandatory to ensure that the materials used in the interiors do not provoke fire. The necessary certificate / test reports should be submitted at the time of approvals.
6. Specifications (Finish and component details)
7. Ceiling Baffle tile: minimum 0.7mm thick CRCA powder coated sheet.
8. Carrier made of 0.60 mm CRCA steel sheet, powder coated to matching baffle colour or black as directed by the Customer. Ceiling to have arrangement to fix, hang and lock the baffles of required sizes and at required intervals. the size of punched carrier would be 35x20x35mm bent channel with holes for suspension and fixing secondary channel.
9. The baffles top edge will have a flange of 5mm to fix in the carrier profile.
10. Mother C Channel: minimum 0.8mm thick CRCA steel sheet with laser cut profiles.
11. Suspension: The carriers would be placed at every 1200mm (maximum) and suspended by means of a secondary angle, channel fixed to the carrier at every 900 to 1200 mm and this secondary member in turn would be suspended by 8mm rod fixed to the slab by means of 8mm diameter, dash fastener.
12. Top clamp: 1mm thick CRCA steel Sheet for holding the threaded rod.
13. End Cap: minimum 0.75mm thick CRCA powder coated sheet. End cap similar to main ceiling baffle.
14. Entire structure will be in powder coated CRCA sheet.
15. Metal Strip where baffle planks will be hanged shall be sleek & sturdy.
16. Colour: As per approval.
17. The ceiling shall have additional perforated sheet between adjacent baffles to conceal the above ceiling services (HVAC & firefighting services) and enhance the aesthetic appeal.

24.13. Designer Metal Ceiling (Refer BOQ 12 Item No. 14)



1. Designer metal ceiling of powder coated tiles of minimum size 550X1150mm.

2. Tiles Perforation – To achieve acoustics without deteriorating the aesthetical appeal of the office interior it is necessary that the at-least twenty five percent of the ceiling tiles have micro-perforations (less than 1.6mm diameter each) all over the surface with a density of 5000 holes per square feet. The ceiling tile to have clean perforations and provides a smooth finish on the front fascia of tiles.
3. The proposed ceiling metal tiles shall be Class A certified/tested as per ASTM e84 (from UL / Intertek) for surface spread of flame and smoke generation. This is mandatory to ensure that the materials used in the interiors do not provoke fire. The necessary certificate / test reports should be submitted at the time of approvals.
4. The ceiling shall have a noise absorption coefficient (NRC) value of 0.60 according to IS:8225-1987, ISO: 354-1985 and ASTM 423-90. The necessary certificate / test reports should be submitted at the time of approvals.
5. To ensure restriction of hazardous substances; so that the final product does not contaminate the environment and we give a healthy life to our coming generations it is necessary that the modular metal ceiling system shall be RoHS certified / tested (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
6. Designer metal ceiling shall be greenguard gold certified/tested from UL / Intertek. The necessary certificate / test reports should be submitted at the time of approvals.
7. The structure shall be made from a heavy-duty powder coated CRCA steel sheet (minimum sheet thickness 0.8 to 1.6mm). It shall be securely grouted from the roof with help of an anchor fastener and GI self-threaded rods.

24.14. Designer Metal Mesh Ceiling (Refer BOQ 12 Item No. 15)



1. Modular acoustic rectangular panel ceiling tiles with inbuilt mesh, made up of minimum 0.6 mm thick metal sheet. Ceiling tile shall be available in minimum 550mm x 1100mm.
2. The tiles shall be installed on ceiling understructure.
3. The tile shall permit integration of ceiling lights as per the requirement.
4. The periphery of the complete ceiling shall be covered by 100 to 500mm calcium silicate board as per the site requirement.

24.15. PET Acoustic Panel Ceiling - Linear Design (Refer BOQ 12 Item No. 16)



1. Computationally generated ceiling form made up of polyethylene terephthalate, the material shall be resistant to moisture. The panels/elements shall be arranged in a defined pattern with proper spacing. The arrangement shall be held in place using the customized metal systems. The width of the polyethylene terephthalate slots shall be minimum 150mm and maximum 1700mm. Maximum single piece length shall be 3000mm. The thickness options shall be 9mm & 12mm. Material NRC should range between NRC: 0.8 - 0.85. The ceiling shall be light in weight and easy to handle.
2. The proposed PET acoustic ceiling panels shall be Greenguard Gold certified/tested (from UL/Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
3. To ensure restriction of hazardous substances; the acoustic panel/board shall be RoHS certified/tested (from UL/Intertek). The necessary certificate / test reports should be submitted at the time of approvals.

24.16. Designer acoustic metal false ceiling with planks (Refer BOQ 12 Item No. 17)



1. Factory made acoustic modular metal false ceiling of powder coated panels. Make shall comprise of perforated and non-perforated metal panels made through CNC laser cutting, bending & punching. Panel shall be of 0.6mm CRCA sheet of approved powder coating finish. Panels shall be designed to achieve shape and design as per the design consultant with the combination of acrylic panels with lights, designed to enhance visual feel, with provision for easy installation and

maintenance, integrated lighting and scope for integration of building services like HVAC and fire detection/ fighting system. Metal modular false ceiling shall have Noise absorption coefficient (NRC) value 0.60 according to IS:8225-1987, ISO: 354-1985 and ASTM 423-90.

2. It is well known that metal is resistant to fire as compared to wood & fabric. However, from fire and safety point of view, to ensure that the used material is not subjected to any kind of surface treatment which provokes fire. The proposed ceiling tiles shall be Class A certified/tested as per ASTM e84 (from UL / Intertek) for surface spread of flame and smoke generation. This is mandatory to ensure that the materials used in the interiors do not provoke fire. The necessary certificate / test reports should be submitted at the time of approvals.
3. To ensure restriction of hazardous substances; so that the final product does not contaminate the environment and we give a healthy life to our coming generations it is necessary that the modular metal ceiling system shall be RoHS certified/tested (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
4. Designer metal ceiling shall be greenguard gold certified/tested. The necessary certificate / test reports should be submitted at the time of approvals.
5. To avoid dark spots/areas in the room it is necessary that continuous linear lights are used across the width/length of the room. Audit certified design feature (from UL / Intertek) of integrated channel in ceiling for quick installation & replaceability of continuous linear light. The ceiling system having integrated inbuilt channel for installation of cove lights and shall permit quick and easy replacement of cove light without using any tools. Replacement to be carried out within 120 Seconds per meter. The necessary certificate / test reports should be submitted at the time of approvals.
6. Seismic safety of user & room equipment is a prime concern area. The metal ceiling shall sustain the seismic vibrations as per design spectrum IS 1893 for zone 2 vibrations or better. The test shall be carried out by authorized government agency. The necessary certificate / test reports should be submitted at the time of approvals.
7. Structure shall be made from heavy duty powder coated CRCA steel sheet (minimum sheet thickness 0.8 to 1.6mm). It shall be securely grouted from roof with help of anchor fastener and GI self-threaded rods. It shall be formed with the help of slotted rolled W sections (stiffener) and Master C section with help of M6 cage nut and bolts.
8. Panels are then fitted on hook system individually on the grid frame work. The panels are also hold by safety wire to ensure that these tiles do not fall during seismic vibrations.
9. The ceiling system shall have double safety system to take care of seismic vibrations.
10. The ceiling planks shall have locking redundancy to enhance seismic impact resistance.

11. The powder coated metal sheet shall have possibility of being formed mechanically per the specific needs of the project. The powder coating shall be able to undergo stretching up to 100% and therefor follow (adhere to) bend with the steel in all its deformation.

12. The master section shall have laser cut profile to enable fixing of perforated, non-Perforated & diffused continuous LED section with acrylic sheet.

13. Dimensional Details

- a. Non- Perforated Tile: - Machine profiled CRCA Steel sheet of 290mm (Wide) available in various length of 600mm to 1800mm in multiple of 300mm.
- b. Perforated Tile: - Machine profiled CRCA Steel sheet with fleece of 146mm (Wide) in various length of 600mm to 1800mm in multiple of 300mm.
- c. Type- Hook on with double locking arrangements. (Key requirement). Shall be easily openable to access above ceiling services. Special connection joineries to take care of seismic vibration.

14. Material Testing/Certification

- a. Powder coating shall qualify 1000 hours' salt spray test.

15. Component Specification

- a. Master Section
 - i. 1.2mm thick CRCA steel sheet section length 1200mm. the installation to be carried out with runner's spaces at 1200/1500/2100mm centre to centre securely fixed to the hanging W section by means at M6 Nut and bolts.
- b. Hanging W Section
 - i. Specially machine profiled W section 65x15x0.8mm.the section shall be 2400 mm long & shall run across the length at the room.
 - ii. Centre to Centre distance between W section shall be 1000mm.
 - iii. These sections are securely fixed to the slab by means of Metal fastener and 08mm GI rod fully threaded (with hex nut for precision level adjustment)
 - iv. The two-master section shall be attached to each other by means at fixing pate 45x34mm & M6 cage nut & bolts.
- c. U Section
 - i. Machine profiled 'U' Section 150x77x0.6mm section to accommodate continues running light
 - ii. It shall have provision for fixing acrylic sheet
 - iii. This whole assembly shall be hung from roof slab with help of anchor fastener and full threaded GI rod.

16. Ceiling Plank

- a. It shall have Laser cut holes/cut-outs for light fixing as per defined lux requirement and approved layout.
- b. Non-perforated tile slots to be punched to accommodate AC grills.

24.17. PET Acoustic Panel Ceiling - Hexagonal Design (Refer BOQ 12 Item No. 18)



1. Computationally generated ceiling form made up of polyethylene terephthalate, the material shall be resistant to moisture. The hexagonal panels/elements shall be arranged in a defined pattern with proper spacing. The arrangement shall be held in place using the customized metal systems. The diagonal width of the polyethylene terephthalate panels shall be minimum 1000mm. The thickness options shall be 9mm & 12mm. Material NRC should range between NRC: 0.8 - 0.85. The ceiling shall be light in weight and easy to handle.
2. The proposed PET acoustic ceiling panels shall be Greenguard Gold certified/tested (from UL/Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
3. To ensure restriction of hazardous substances; the acoustic panel/board shall be RoHS certified/tested (from UL/Intertek). The necessary certificate / test reports should be submitted at the time of approvals.

24.18. Calcium Silicate Ceiling (Refer BOQ 12 Item No. 19)

1. Plain calcium silicate acoustic boards for false ceiling with 08mm approximately thick, structure for underside of suspended grid formed of GI perimeter channels. Wood screws and metal expansion raw plugs for fixing with wall. Plastic emulsion paint of approved make and shade for finishing surface of calcium silicate boards. Specification: calcium silicate board is manufactured from a mixture of portland cement, fine silica, special cellulose fibers and selected fillers to impart durability, toughness, fire and moisture resistance.

24.19. Composite Ceiling (Refer BOQ 12 Item No. 20)

Calcium Silicate Ceiling Plain calcium silicate acoustic boards for false ceiling with 08mm approximately thick, structure for underside of suspended grid formed of GI perimeter

channels. Wood screws and metal expansion raw plugs for fixing with wall. Plastic emulsion paint of approved make and shade for finishing surface of calcium silicate boards.

Specification: calcium silicate board is manufactured from a mixture of Portland cement, fine silica, special cellulose fibers and selected fillers to impart durability, toughness, fire and moisture resistance.

Computationally generated ceiling form made up of polyethylene terephthalate, the material shall be resistant to moisture. The hexagonal panels/elements shall be arranged in a defined pattern with proper spacing. The arrangement shall be held in place using the customized metal systems. The thickness options shall be 9mm & 12mm. Material NRC should range between NRC: 0.8 - 0.85. The ceiling shall be light in weight and easy to handle.

24.20. Designer PET Chandelier (Refer BOQ 12 Item No. 21)



1. Computationally generated chandelier made up of polyethylene terephthalate, the material shall be resistant to moisture. The hexagonal panels/elements shall be arranged in a defined pattern with proper spacing. The arrangement shall be held in place using the customized metal systems. The panel thickness shall be 9mm. Material NRC should range between NRC: 0.8 - 0.85. The ceiling shall be light in weight and easy to handle.

24.21. Designer Acoustic Flooring (Refer BOQ 12 Item No. 22)



1. To avoid distraction of operators because of unwanted noise generated from movement of chairs/people in the control/office room it is necessary that the proposed flooring shall damp such impact noises. Acoustic flooring (shall reduce impact sound by 14dB (ISO 717-2)). It shall be twin-layer linoleum built up from minimum 2mm acoustic laminate and a 2mm corkment backing. Flooring shall be decorative type of approved shade, pattern, texture and design and of approved manufacturer. Dimensions shall be as per the final approved design and site requirement. Flooring

shall be laid over concrete floor with laying compound strictly as per manufacturer's specification. The designer acoustic flooring shall be Greenguard gold tested / certified. The necessary certificate / test reports should be submitted at the time of approvals.

24.22. Vitrified Flooring

1. Fully vitrified, 8mm thick non-porous, homogenous, abrasion resistant, minimum size 600 mm x 600 mm x 8mm of approved colour and shall be laid over concrete floor with laying compound strictly as per makes given. Total thickness of the flooring shall be 40mm thick including the thickness of the tiles, under bed. Tiles will be laid with 2 mm gap using spacers and gap will be filled with black colour epoxy laticere.

24.23. Designer Privacy film for glass partitions & glass door (Refer BOQ 12 Item No. 23)

1. The film to be installed on clear glass to provide the look of sandblasted glass.

24.24. Curtains for windows: Roll Down Curtains Sign board (Refer BOQ 12 Item No. 24)

1. Supply and installation of manual roller blinds having aluminium roller tube along with fabric pasted on it with glue having control unit for manual operations and bottom bar aluminium powder coated for weight purpose, including fabric fitting and accessories of approved make and colour etc. complete. OR as per engineer approval.

24.25. Sign Board (Refer BOQ 12 Item No. 25)

1. Providing and fixing Name plate for individual cabin and rest of the area. Signage's are made up of laser cut Anti-Corrosive high grade AISI 316 Stainless Steel of 2mm thick sheet with laser cut method for impression and with satin finish.
2. Approx. Dimensions: 300 mm X 170 mm X 2 mm. Design and detailing provided by as per engineer in charge.

24.26. Batten LED (Refer BOQ 12 Item No. 26)

1. It integrates a LED light source into a traditional fluorescent form factor. Its unique design creates a perfectly uniform visual appearance which cannot be distinguished from traditional fluorescent. For those that are looking for value for money within limited budget and re-lamping efforts for better light effect and lifetime.
2. Lumen Output - 2000 – 3000
3. Colour Temperature (K)- 3000 K / 4000K / 5700K / 6500K
4. LED's life >25,000 hrs @ L70

5. CRI >70
 6. Input Voltage Range (V) 150 - 270
 7. LED Efficacy (lm/W) >150
- Power Consumption (W) 20W to 32W

24.27. LED based square Lights (Refer BOQ 12 Item No. 27)

1. LED office General Lighting Solutions which offer excellent energy saving and maintenance free operation. The luminaire has a slim design which is suitable for recessed mounted application for office Spaces. Powered by Long lasting LED light source and high efficiency optical system the luminaire offers a uniform and uninterrupted Lighting.
2. Light source: LED
3. Light Colour: 3000 K / 4000 K / 5700K
4. Power consumption: 29 to 38 W
5. Input Voltage Range (V) - 150 - 270
6. LED's life >21,500 hours @ L70

24.28. Round LED Lights (Refer BOQ 12 Item No. 28)

1. High performance LED downlighter with high system efficacy for good quality and uniform lighting. Conforms to general lighting norms for office and other indoor applications.
2. Colour Temperature (K)- 3000 K / 4000 K / 5700K
3. LED Efficacy (lm/W) – 100 to 160
4. CRI >70
5. Power Consumption 6W to 24W
6. LED's life >25,000 hours @ L70

24.29. LED based strip Lights (Refer BOQ 12 Item No. 29)

1. It will be a continuous rail of LED light, high brightness, neutral, or warm white with wall washing applications. Its slim profile and simple daisy-chain system allows high design flexibility to form long.
2. Light source: LED
3. Light Colour: 6500K
4. Power consumption: 3W/m to 5W/m
5. Operating Voltage Range (V) 100 – 300
6. Operating Frequency (Hz) 50 ± 3%
7. Colour: White
8. Lifetime: 15000 burning hrs. (At L70)

24.30. Designer Ceiling light Wipro Vertica/ Equivalent (Refer BOQ 12 Item No. 30)

Designer Ceiling light Wipro Vertica/ Equivalent (As per EIC approval)

The light shall be premium lighting and shall be used in open ceiling spaces to create lighting effects. Surface and pendant mount provision with the help of accessories.

Aluminium Body Powder Coated in White or Black

Clean diffuser

High power high lumen output LED

High efficiency reflector optics

Effective thermal management

OR

as per EIC approval.

24.31. Designer Ceiling light Wipro Celeste/Equivalent (Refer BOQ 12 Item No. 31)

Designer ceiling light Wipro Celeste/Equivalent (As per EIC approval)

High Efficiency Translucence (HET) diffuser. Housing made up of fiber reinforced plastic outer surface painted. High efficacy LEDs. Diffused Glass dome.

OR

as per EIC approval.

24.32. Designer Ceiling light Wipro Orbit/Equivalent (Refer BOQ 12 Item No. 32)

Designer Ceiling light Wipro Orbit/Equivalent (As per EIC approval)

High efficacy and long-life LEDs

Housing made of CRCA and white matt powder coated

High Efficiency Translucence (HET) diffuser made of PMMA (acrylic) milky white

Suspension system made of steel wire of 2mm dia and accessories are chrome plated Or conduit made of MS pipe and white powder coated

Easy to mount on true ceiling and quick to service.

OR

as per EIC approval.

24.33. Reception counter (Refer BOQ 12 Item No. 33)



1. The furniture work surface shall be straight in shape to maintain grand aesthetic appeal. It shall be made of minimum 25mm thick MDF finish.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.
3. The under-structure shall be minimum 18mm thick MDF board.
4. Accessories: 2 nos. Flap each having provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 2 nos. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
5. Design as per engineer in charge approval.
6. Approximate minimum dimensions – 3000mm(W) X 750mm(D) X 750mm(H)

24.34. 3&2 - Seater Sofa (Refer BOQ 12 Item No. 34 for 3- Seater & Item No. 35 for 2-Seater)



1. The top shall be of Upholstery with PU Finish. The sofas are made of solid wood base, reinforced with supportive addendum in the seat. Engineered wood panels form/support the overall design structure, they synergise with the solid wood to offer unparalleled life to the product. Foam padding of multi-density and varying thicknesses provide cushion for the sofa. PU foam used is made Hennecke foam plants using German Technology capable of producing the high-quality flexible polyurethane foam. It provides unparalleled comfort, ease of use and durability. The foam used is 32 Density for seating areas and 28 Density for backrest. The supersoft foam used is in seating areas in 32-35 Density High-resilience (HR) foam which is unique and rarely used by manufacturers. Webbing: Interwoven high tensile elastic bands for optimum comfort and endurance.

24.35. Single Seater Sofa (Refer BOQ 12 Item No. 36)



Single Seater sofa chair without Arm, SS Base Stand, Gas Lift, Leatherette Tapestry. (This sample to be approved before supply)

24.36. Chat chair / Hot Seat (Refer BOQ 12 Item No. 37)



1. It shall have acoustic wrapped fabric fully upholstered on inner and outer side. The entire inside structure shall be made of aluminium frame. It should be designed with Ergonomics in mind.
2. The fabric shall be washable, appropriate for task seating and should withstand normal wear and tear. Fabric Make: Camira (Sprint) / Sunbury / Kvadrat / Response OR Equivalent.

24.37. Lobby Furniture (Refer BOQ 12 Item No. 38)



It shall be designed for minimum 2 people; it shall have acoustic wrapped fabric fully upholstered on inner and outer side. The leg shall be made up of steel. The fabric shall be washable, appropriate for task seating and should withstand normal wear and tear. Fabric Make: Camira (Sprint) / Sunbury / Kvadrat / Response OR Equivalent.

24.38. Center Unit (Type 1) (Refer BOQ 12 Item No. 39)



1. Centre unit for sofa, toughened glass, 12mm thick, chrome plated pipe frame.
2. Approximate minimum dimensions – 1200mm(W) X 600mm(D) X 450mm(H)

24.39. Center Unit (Type 2) (Refer BOQ 12 Item No. 40)

1. 18mm thick MDF top for center unit for sofa with injection molded polyurethane nosing on profiled wooden core.
2. Understructure shall be made up of laminated board / sheet metal. Approximate minimum dimensions – 800mm (W) X 450mm(H)

24.40. Center Unit (Type 3) (Refer BOQ 12 Item No. 41)

1. 18mm thick MDF top for center unit for sofa with injection molded polyurethane nosing on profiled wooden core.
2. Understructure shall be made up of laminated board / sheet metal. Approximate minimum dimensions – 600mm (W) / 600mm (Dia.) X 450mm(H).

24.41. Chair (Type 1) (Refer BOQ 12 Item No. 42)



1. High Back with Mesh Backrest,
2. Adjustable Armrest
3. Gaslift for seat height adjustment,
4. Standard 5-prong nylon base.
5. Seat: Fabric
6. Backrest – Mesh

24.42. Chair (Type 2) (Refer BOQ 12 Item No. 43)



1. Medium Back
2. Mesh Back,
3. Silver Epoxy Backbone,
4. Synchronized Mechanism,
5. 3-Way Adjustable Armrest,
6. Gaslift for Seat height adjustment,
7. Standard 5-prong nylon Base,
8. Seat - Fabric and mesh backrest.

24.43. Chair (Type 3) (Refer BOQ 12 Item No. 44)



1. Low back visitor model ABS for seat, Mesh back with extra lumbar Support with fine tuning for depth adjustment, with fixed armrest, silver epoxy cantilever base Upholstery: Black Fabric Seat & mesh backrest.

24.44. Auditorium Chair (Refer BOQ 12 Item No. 45)

1. Mid-back Auditorium Chairs (Fixed Type). Colour of the same shall be finalised during the engineering finalisation phase. The colour which goes well with the interiors and suitable for the overall aesthetics of the room shall be considered.

24.45. Podium (Refer BOQ 12 Item No. 46)

1. The podium console must be modular with 25mm thick MDF table top with high pressure laminate finish.
2. Under structure shall be made up of heavy duty Extruded Vertical and Horizontal Aluminum profiles of HE9WP grade / sheet metal / MDF.

24.46. Workstation Desk (Type 1 & 2) (Refer BOQ 12 Item No. 47 for Type-1 & Item No. 48 for Type-2)



1. Linear shape tabletop shall be of 25 mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum

core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.

3. Legs: Ergonomically designed and matching with the open office concept. The leg is made out of sheet metal.
4. The screen shall be made of minimum 8mm thick frosted acrylic or fabric panel.
5. Under structure pipe shall be made up of minimum 1.6mm thick CRCA Laser cut components, powder coated with the matching shade/Colour/finish.
6. Cable tray: Shall be made up of 1mm thick CRCA sheet, Cable tray is used for running the wires between the desk. Provision of switch socket and wire flow can be made as per requirement of Engineer in charge.
7. Accessories: Flap with provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 1 no. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
8. The desk shall be Greenguard gold tested/certified (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
9. (Type -1) Approximate minimum Dimensions – 1200mm(W) X 600mm (D) X 750mm(H).
10. (Type -2) Approximate minimum Dimensions – 1500mm(W) X 600mm (D) X 750mm(H).

24.47. Workstation Desk (Type 3) (Refer BOQ 12 Item No. 49)



1. Designer tabletop shall be of 25 mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.

3. Legs: Ergonomically designed and matching with the open concept. The leg is made out of sheet metal.
4. The screen shall be made of minimum 12mm thick frosted acrylic or fabric panel.
5. Under structure pipe shall be made up of minimum 1mm thick CRCA Laser cut components, powder coated with the matching shade/Colour/finish.
6. Cable tray: Shall be made up of 1mm thick CRCA sheet, Cable tray is used for running the wires between the desk.
7. Provision of switch socket and wire flow can be made as per requirement of Engineer in charge.
8. The spine shall be made up of MDF/aluminum extrusion/CRCA frames. The extrusions/frames shall be duly powder coated with 40+ microns over all surfaces.
9. The desk shall be greenguard gold tested/certified (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
10. Accessories: Flap with provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 1 nos. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
11. Approximately Dimensions: 1500mm(W) X 600mm(D) X 750mm(H)

24.48. Workstation Desk (Type 4) (Refer BOQ 12 Item No. 50)



1. Y shape design desk. Tabletop shall be of 25 mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.

3. Legs: Ergonomically designed and matching with the open concept. The leg is made out of sheet metal.
4. The screen shall be made of minimum 8mm thick frosted acrylic or fabric panel.
5. Under structure pipe shall be made up of minimum 1mm thick CRCA Laser cut components, powder coated with the matching shade/Colour/finish.
6. Cable tray: Shall be made up of 1mm thick CRCA sheet, Cable tray is used for running the wires between the desk. Provision of switch socket and wire flow can be made as per requirement of Engineer in charge.
7. Accessories: Flap with provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 1 no. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
8. The desk shall be Greenguard gold tested/certified (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
9. Approximate minimum Dimensions – 1000mm(W1) X 1000mm(W2) X 500mm(D) X 750mm(H).

24.49. Metal Storage (Refer BOQ 12 Item No. 51)



1. Versatile 3-drawer office storage system solution shall be made up of 0.8mm - 1mm CRCA sheets with powder coated finish. The drawers are meant to store stationary items like pens, calculators, staplers, files, folders, documents etc. It comes with sliding drawers and single lock operation along with caster wheels for 360-degree movement. The storage shall be greenguard gold tested/certified (from UL / Intertek). Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals. Approximate minimum Dimensions – 420mm(W) X 450mm(D) X 550mm(H)

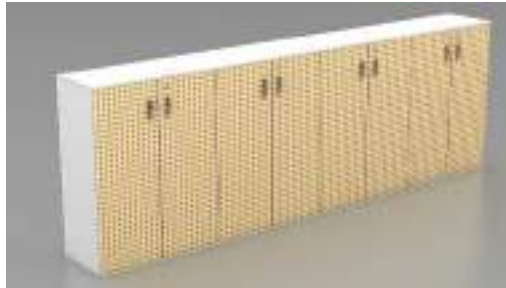
24.50. Side Metal Storage (Refer BOQ 12 Item No. 52)

1. Side metal storage shall be made up of 0.8mm - 1mm CRCA sheets with powder coated finish. The drawers and shutter are meant to store stationary items like pens, calculators, staplers, files, folders, documents etc. It comes with sliding drawers and openable shutter along with caster wheels for 360-degree movement. The side metal storage shall be Greenguard gold

tested/certified (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.

2. Approximate minimum Dimensions – 900mm(W) X 450mm(D) X 550mm(H)

24.51. Metal Storage (Medium Height) (Refer BOQ 12 Item No. 53)



1. Flat pack made up of minimum 0.6mm CRCA powder coated finish with hinged doors and adjustable shelves for different file heights. The storage shall be greenguard gold tested/certified. Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals. Approximate minimum Dimensions – 900mm (W) X 450mm (D) X 1200mm(H).

24.52. Glass bookshelf (Refer BOQ 12 Item No. 54)

1. Glass bookshelf made of 0.8mm cold rolled closed annealed (CRCA) sheet with prime epoxy powder coat comply, Door will be 1mm CRCA sheet framing and 5mm toughened glass concealed through rubber gromet, the shelves unit fixed double right angle bended to avoid scratches (load carrying capacity of 20 kg/each shelf). Construction of glass bookshelf will be Riveted joints for easy construction and finish & side panel slotted for adjustable shelves & D-Type chrome finished handles, cylindrical fulcrum type locks upward lifting: mechanical mechanism of rod used to be for door uplifting & M6 Threaded top groove rod with ABS molded foot leveling.
2. Approximate Dimensions: 900mm(W) X 450mm(D) X 1800mm(H).

24.53. Library Counter (Refer BOQ 12 Item No. 55)

1. The furniture work surface shall be straight in shape to maintain grand aesthetic appeal. It shall be made of minimum 25mm thick laminated MDF.
2. The structure shall be made up of powder coated steel / Extruded Aluminum Alloy / MDF / board finish.
3. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be

mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.

4. It shall have provision of Electrical and Lan sockets with concealed wiring.
5. Design as per Engineer In charge Approval.
6. Approximately Dimensions: 1500mm(W) X 750mm(D) X 750mm(H).

24.54. Library Table (Refer BOQ 12 Item No. 56)

1. Table top shall be of 25 mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.
3. The understructure shall be made up of sheet metal.
4. Approximate minimum dimensions – 1050mm(W) X 1050mm(D) X 750mm(H) / 1050mm (Dia.) X 750mm(H)

24.55. Computer/Study/Library/ E Learning Counter (Refer BOQ 12 Item No. 57)

1. Linear shape tabletop shall be of 25 mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.
3. Legs: Ergonomically designed and matching with the open office concept. The leg is made out of sheet metal.
4. Approximate minimum dimensions – 1200mm(W) X 600mm(D) X 750mm(H).

24.56. Library Chair (Refer BOQ 12 Item No. 58)



1. Low back visitor model ABS for seat, Mesh back with extra lumber Support with fine tuning for depth adjustment, with fixed armrest, silver epoxy cantilever base Upholstery: Black Fabric Seat & mesh backrest.

24.57. Cabin desk (Refer BOQ 12 Item No. 59 for size mentioned in Point-7 & Item No. 60 for size mentioned in Point-8)



1. The furniture top shall be made up of minimum 25mm thick MDF board.
2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.
3. The under structure and complete structure shall be made up of 18mm thick MDF board.
4. The furniture is equipped with handles for easy opening along with soft closing drawers. The Construction shall be of high quality MDF board.
5. Accessories: Flap with provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 2 nos. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
6. The desk shall be Greenguard gold tested/certified (from UL / Intertek). The necessary certificate / test reports should be submitted at the time of approvals.
7. Approximate minimum dimensions

- a. Table – 2100mm(W) X 750mm (D) X 750mm(H)
 - b. Side Runner – 900mm(W) X 450mm(D) X 750mm(H)
 - c. Back Runner – 2100mm(W) X 450mm(D) X 750mm(H).
8. Approximate minimum dimensions
- a. Table – 1500mm(W) X 750mm (D) X 750mm(H)
 - b. Side Runner – 900mm(W) X 450mm(D) X 750mm(H)
 - c. Back Runner – 1500mm(W) X 450mm(D) X 750mm (H)

24.58. Open Collaborative Meeting (Refer BOQ 12 Item No. 61)



1. It shall be designed for minimum 4 people; it shall have acoustic wrapped fabric fully upholstered on inner and outer side. The countertop at the center shall have laminate finish. The edges shall have molded polyurethane edge. The entire structure shall be self-standing without any need of grouting. It should be designed with Ergonomics in mind. It should have Integrated power socket under seat.
2. The fabric shall be washable, appropriate for task seating and should withstand normal wear and tear. Fabric Make: Camira (Sprint) / Sunbury / Kvadrat / Response OR Equivalent.

24.59. Meeting table (Refer BOQ 12 Item No. 62)

1. The furniture top shall be made up of minimum 25mm thick MDF board with molded Polyurethane (PU) Edge.
2. The under structure shall be made up of sheet metal.
3. Approximate minimum dimensions – 1050mm(W) X 1050mm(D) X 750mm(H) / 1050mm (Dia.) X 750mm(H)
4. Accessories: Flap with provision and SITC of 2 nos. 16 Amp modular Switch and 2 nos. 6/16 Amp modular Socket with 1 no. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge

24.60. Conference/Meeting Room Desk (Refer BOQ 12 Item No. 63 for 8 Pax, Item No. 64 for 9 Pax, Item No. 65 for 11 Pax, Item No. 66 for 13 Pax, Item No. 67 for 15 Pax)



1. The conference/meeting room furniture shall conform to high standard of engineering as mentioned in the document; meeting the specified codes, standards and designs.
2. The furniture top shall be made up of minimum 25mm thick MDF board with molded Polyurethane (PU) Edge.
3. The under structure shall be made up of 18mm thick MDF board with 2mm thick PVC edge banding tape.
4. Accessories: 6/7 nos. of Flap each having provision and SITC of 2 nos. 16 Amp modular Switch and 3 nos. 6/16 Amp modular Socket with 2 nos. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge
5. The conference room furniture shall be Greenguard gold tested/certified (from UL / Intertek). The necessary certificate / test report to be submitted at the time of approval.
6. Cable Trays and Wiring: - The furniture shall be designed with cable trays to allow for continuous & concealed cable management across the furniture.
7. Approximately minimum dimensions:
 - a. Conference/meeting room furniture for (08 Pax) Approximately minimum Dimensions – 1800mm (W) X 1200mm (D) X 750mm(H)
 - b. Conference/meeting room furniture for (09 Pax) Approximately minimum Dimensions – 2700mm (W) X 1500mm (D) X 750mm(H)
 - c. Conference/meeting room furniture for (11 Pax) Approximately minimum Dimensions – 3600mm (W) X 1500mm (D) X 750mm(H)
 - d. Conference/meeting room furniture for (13 Pax) Approximately minimum Dimensions – 4200mm (W) X 1500mm (D) X 750mm(H)
 - e. Conference/meeting room furniture for (15 Pax) Approximately minimum Dimensions – 5200mm (W) X 1500mm (D) X 750mm(H)

24.61. Training / Class Room Table

1. Tabletop shall be of 25 mm thick MDF board.

2. The working side edge: - Audit certified design (from UL / Intertek) feature on front modular Polyurethane (PU) Edge. High density Poly Urethane Foam moulded on industrial grade aluminum core to form minimum 50mm deep tapered edge to be installed on worktop. The edge shall be mechanically replaceable within 30 minutes in case of damage or wear without opening or removing the top. The necessary certificate / test reports should be submitted at the time of approvals.
3. Leg and under-structure shall be made up of sheet metal.
4. Approximate Dimensions: 1800mm(W) X 600mm(D) X 750mm(H)
5. Accessories: Flap with provision and SITC of 2 nos 16 Amp modular Switch and 3 nos 6/16 Amp modular Socket with 1 no. CAT-6A LAN I/O point as per approved make and wire flow can be made as per requirement of Engineer in Charge.

24.62. Dining Counter (Refer BOQ 12 Item No. 68 for Point 3 , Item No. 69 for point 4, Item No. 70 for point 5)

1. The dining furniture shall have granite top of minimum 12mm thick.
2. The under-structure shall be made up of stainless steel (SS304).
3. Approximate minimum dimensions – 1050mm(W) X 1050mm(D) X 750mm(H)
4. Approximate minimum dimensions – 1800mm(W) X 800mm(D) X 750mm(H)
5. Approximate minimum dimensions – 2400mm(W) X 800mm(D) X 750mm(H)

24.63. VIP Dining Counter (Refer BOQ 12 Item No. 71)



1. The dining counter shall have veneer with PU matt finish. The structure shall be made up of veneered MDF/ply structure with matt finish.
2. Approximate minimum dimensions – 7400mm(W) X 2100mm(D) X 750mm(H)

24.64. VIP Dining Chair (Refer BOQ 12 Item No. 73)

1. Chair shall be made up of solid teak wood with matt finish, with artificial leather upholstery with appropriate cushion.

24.65. Dining Counter Chair (Refer BOQ 12 Item No. 72)

1. Dining Counter Chair without arm, PP/Fiber with steel base.

Note : Necessary certificate / test-reports as asked in above specifications should be valid on bid due date and should be submitted at the time of approvals.

7. Annexure A of Rajasthan PWD Electrical BSR 2022

Annexure-A

Additional Technical parameters of products/ work

1. PWD specifications for Electrical works -2012 (as amended upto date), relevent IS codes, National Building Code / National Lighting Code / National electric Code / Indian Electricity Rules (all as amended upto date) shall be treated as part of this Electric BSR-2022 for the purpose of detailed specifications & clarifications, if any. Henceforth this BSR-2022 shall be considered as part of all contracts/ agreements, controversy / dispute in interpretation of BSR -2022, decision of Chief Engineer (Electrical) PWD Rajasthan shall be final & binding.
2. Agency must ensure to take prior approval for makes and models in writing before / at the time of layout by Engineer-in-Charge as per specifications with submitting TDS of products & all items used from any particular chapter of this BSR for any individual project, should be of same brand which is approved before execution as per availability.
3. OEM installation manual guideline practice for execution of work at site must be followed by agency's engineer & verified by department.
4. Agency must ensure to execute all hidden items in presence of engineer-in-charge or site engineer. GPS Photo be attach at the time of measurement.
5. Tests of specified items below must be done in Government approved OEM's authorised Labs / outsource from government approved any authorised Lab by agency & no extra payment shall be made for below mentioned tests & procedures at all :-↓

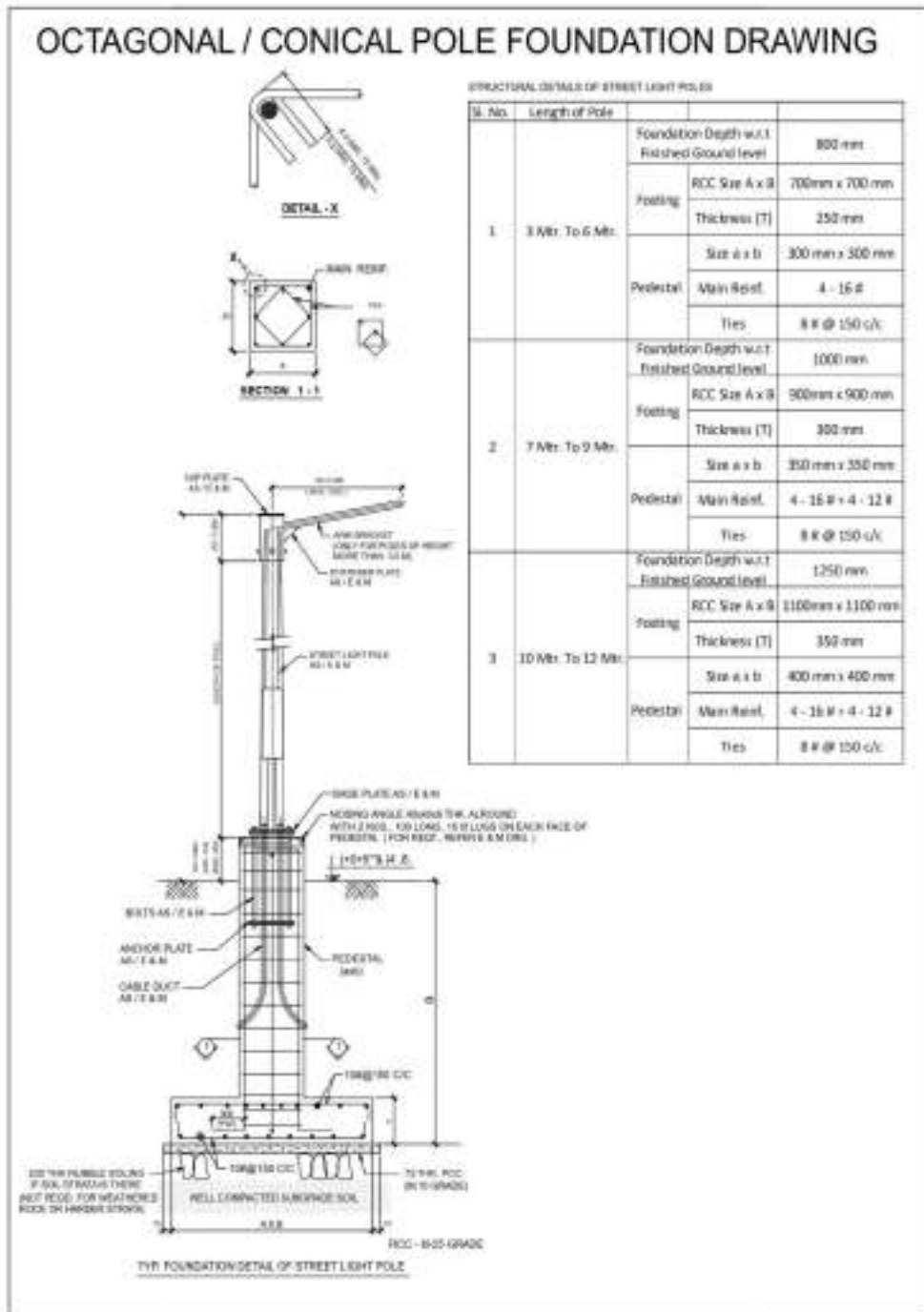
Sr.No.	Item Name	Tests must be done in Government approved OEM's authorised Labs / outsource from government approved any authorised Lab as mentioned below :-
	↓	01 test if quantity in BOQ/execution is more then ↓
1	Wiring accessories (switch / socket)	500 wiring points
2	Wiring accessories Regulator / dimmer	150 Nos.
3	PVC / Steel Conduit (Total of all sizes)	500 wiring points
4	Sheet Steel Box/ M.S. Box/ GI Box/ PVC Box (Total of all sizes)	300 Nos. (Total of all sizes)
5	MCB/RCCB/Isolator (1 Pole to 4 Pole) (Total of all amp rating)	150 Nos. (Total of all amp rating)
6	Ceiling Fan/ Exhaust /fresh air/ wall mounting fan. (Total All sizes)	100 Nos. (Total All sizes)

6. Factory Inspection for testing of specified items below must be done in Government approved OEM's authorised Labs by departmental Engineer. Agency must ensure to make all necessary permission and arrangements for the visit & no extra payment shall be made for all this procedure :-↓

Sr.No.	Item Name	Factory inspection for testing in Government approved OEM's authorised Labs by department engineer as mentioned below :-
	↓	If quantity in BOQ/execution is more then ↓
1	Indoor LED Lighting fixture all types	200 Nos.
2	Outdoor LED Lighting fixture all types	50 Nos.
3	Lattice tower all sizes	5 Nos.
4	Air Conditioner	30 Nos.
5	Air cooling machine/ Chillers	5 Nos.
6	Street light pole	30 Nos.
7	Transformer	compulsary for Each quantity
8	High mast pole	compulsary for each if height is 16 Mtr. or more.
9	DG set	compulsary for Each quantity
10	RMU	compulsary for Each quantity
11	Bus Bar Trukning	compulsary for Each quantity

7. Any Items can be send for testing by Engineer-in-Charge in Government Authorised any approved Lab. Payment of testing charge shall be borne by department for that. Agency is liable to make all necessary arrangement to send the sample & get reports from lab without ant extra cost.
8. Agency will submit minimum one year valid gaurentee certificate of Product & Liable product genuineness purchase proof from OEM/ Authorised Dealer .
9. Appropriate/ Routed type Test Certificates/ reports related to IS code with liable standard warranty proof / certificate of product from OEM / authorised dealer shall be submitted by agency during / at the time of execution & duly verified by Engineer-in-Charge.
10. Agency must ensure to prepare the Satisfactory installation service report from OEM engineer for major items like DG set, Transformer, PSS, RMU, Fire fighting pumps, VRF/VRV, package AC units, ACB, High Mast (16 mtr. or heigher) etc. and submit the same in Engineer In charge office. All record be kept with agreement file.

11. Octagonal/Conical pole drawing (BOQ 3 item no 321)



12. High mast lighting system specification (BOQ 3 item no 327)

High mast suitable for 2 / 3 point suspension system of lantern carriage for wind speed up to 180 Km / Hour

Height of Mast	Unit	16 Mtr.
Material Construction		IS 2062 grade E350 / BS EN 10025 or Equivalent having minimum yield strength of 350 N/Sq. mm
No. of Longitude Welds	No.	Single
Top/ Bottom (diameter of High Mast)	mm.	150/410
Cross section of Mast polygone (No. of Sides)	No.	20 Sides
Nos. of Section of Mast	No.	2
Thickness of Section	MM	3-4
Thickness of Galvanisations (Min.)	Micron	As per BSEN ISO 1461 (For Steel \leq 3 mm - 55 Microns)
Size of Base Plate (Min.)	MM	570
Thickness of Base Plate (Min.)	MM	25
Foundation Bolts		
Nos of Bolts	No.	8
PCD of Foundation	MM	490
Bolt Diameter/Grade/Tensile Strength	MM	24X850/ EN 8 Grade Minimum tensile strength 600 N/mm ²
Lantern Carriage (No. of Half)	No.	2
Material of construction of LC/Lantern carriage finish		50 NB ERW Class A - M. S. Pipe
Lantern Carriage (No of Arms)	No.	6
Lantern Carriage Minimum Inner Dia	mm	535

Height of Mast	Unit	16 Mtr.
Lantern Carriage Minimum Length of Arms	mm	600
Hardwares		Less than 10 mm stainless steel AISI 304 & 12 mm above hot dip galvanized
Nos of fittings LED 400W	No.	8
Winch		
Nos. of Drum	Drum/Winch	2
Capacity (Min.)	Kg.	SWL 350
Wire Rope (Nos./Thickness)	Nos. (MM)	3/6mm, AISI 304
Input Supply/Power tool /Torque Limitor		415V , 3 Phase/ (Reversible with Plate arrangement for adjusting the tension in the coupling chain between motor & winch/Mechanical
Cable Connectors (Plug & Socket)		5 Pin Male/Female Connectors
Motor	HP	1.0 HP
Trailing Cable (Condcutor/Type/Size)		Copper/EPR insulated PCP scheathed cotton braided/5CX4.0 sqmm

13. Other revisions

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
1	Volume 1	28	C.Bidder's Qualification/ Eligibility Criteria-> a. Qualification of the bidder -> Legal Entity	<p>The bidder should be a company registered under Indian Companies Act, 1956</p> <p>OR</p> <p>A partnership firm registered under Indian Partnership Act, 1932</p> <p>OR</p> <p>Registered with any state/central works department in AA class category in civil / electrical (building works)</p>	<p>The bidder should be a company registered under Indian Companies Act, 1956</p> <p>OR</p> <p>A partnership firm registered under Indian Partnership Act, 1932</p> <p>OR</p> <p>Registered with any state/central works department in AA class category in civil / electrical (building works)</p> <p>OR</p> <p>Joint Venture is allowed provided that all material procurement will be made on the name of JV and all payments by the department shall be released to JV Unit only.</p> <p>a. Any partner in Joint Ventures must satisfy above Basic Requirement of (2) Technical Experience of Bidder for civil construction work as per definition of Similar work.</p> <p>b. Any partner in Joint Ventures must satisfy above Basic</p>

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
					<p>Requirement of (3) Financial Turnover for Civil construction Works.</p> <p>c. Maximum numbers of partners allowed in Joint venture is “Two”.</p> <p>d. Number of entities in a joint venture (“JV”) shall mean all entities involved / mentioned in the Joint venture agreement enclosed by the bidder. All the members of JV shall be jointly and severally responsible for execution of contract.</p> <p>e. The JV shall nominate a member who shall have at least 51% share of work in the Project as the lead member, who shall have the authority to conduct all business for and on behalf of all the members during the Tender Process, receive instructions for and on behalf of any member of the JV, and in the event if work is awarded to the JV, during</p>

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
					<p>contract execution.</p> <p>f. A bidder is allowed to participate in one bid only, submitted either singly or in JV. A bidder who participates in more than one bid will cause the bidder's participation in all the respective bids to be disqualified.</p> <p>g. No foreign member is allowed in JV</p> <p>h. A Copy of Joint Venture Agreement ("JVA") executed by the JV Members on non-judicial stamp paper shall be submitted along with the tender. The complete details of the members of the JV Firm, its Lead member, their share and responsibility in the JV Firm, etc particularly with reference to financial, technical and other obligations shall be furnished in the Joint Venture Agreement.</p> <p>i. The copy for Draft agreement for making JV is separately enclosed as Annexure 26 of RFP</p>

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
2	Volume II	904	Item No. 73	Cast resin Busduct -> Schneider, E+, Legrand	Cast resin Busduct -> Schneider, EAE, Legrand, L&T
3	Volume II	903	Item No. 42	Busway / Busduct (Sandwich) -> Schneider/ Star Line / Siemens/GE/ Eaton/ Legrand	Busway / Busduct (Sandwich) -> Schneider/ Star Line / Siemens/GE/ Eaton/ Legrand/EAE/L&T
4	RFP Volume II	Page no. 384	13. Technical Specifications of UPS for BOQ6> 13.1.4 Other technical specification of the 60 kVA UPS	E. Batteries Parameters -> No. of battery blocks -> 26-40 for Each UPS as per the backup time	E. Batteries Parameter -> No. of battery blocks : No. of batteries will be as per back up time required
5	RFP Volume II	Page no. 506	20.2.1.1: General Description	General Description -> UPS shall be of maximum 3U size, rack mountable	General Description -> UPS can be rack or floor mountable and size as per preferred makes and matching specification of UPS
6	RFP Volume II	Page no. 508	20.2.1.3 UPS (2x20 kVA) Scope	B. Specification / features of the UPS system is as follows -> v. Batteries to support combined 60minutes full load backup.	B. Specification / features of the UPS system is as follows -> v. Batteries to support combined 20 minutes full load backup
7	RFP Volume II	Page no. 509	C. UPS other technical specification	5. Batteries Parameters -> No. of battery blocks ->32-40	5. Batteries Parameters -> No. of battery blocks : No. of batteries will be as per back up time required

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
8	Volume III	RFP Page No. 1338 and BoQ14 item S. no. 97	SITC of digital podium	PC-> Intel-i5-7th Gen., 8 GB RAM, 256 GB SSD, Windows 8.1	PC-> Intel-i7-11th Gen., 8 GB RAM, 256 GB SSD, Windows 11
9	Volume III	RFP Page No. 1325 and BoQ14 item S. no. 29		43" Professional LED panel display → Contrast Ratio (typ.) : 4000:1	43" Professional LED panel display → Contrast Ratio (Dynamic) : 4000:1/1100:1/1000000:1
10	Volume III	RFP Page No. 1325 and BoQ14 item S. no. 30		75" Professional LED panel display → Contrast Ratio (typ.) : 4000:1	75" Professional LED panel display → Contrast Ratio (Dynamic) : 4000:1/1100:1/1000000:1
11	RFP Volume II	Page no. 557	22.10 Technical specifications for Smart Interactive Display Panel of 136" and above	Earlier Heading → Technical specifications for Smart Interactive Display Panel of 136" and above	Heading → Technical specifications for Display Panel of 136" and above
12	Volume II Page No. 901 item no. 10		Preferred Makes of Electrical	Air Circuit Breaker → PREFERABLY SIEMENS 3 WL ETU 76 B / ABB E MAX PR123 / L&T U POWER	Air Circuit Breaker → PREFERABLY SIEMENS 3 WL ETU 76 B / ABB E MAX

S.No.	RFP Volume Name and Number	RFP Page No.	RFP Rule No.	Earlier Rule Detail	Revised Rule
				MTX 4.5/ SCHNEIDER MASTERPACT NW 6E/ LEGRAND	PR123 / L&T U POWER MTX 4.5/ SCHNEIDER MASTERPACT NW 6E/ LEGRAND DMX3MP4
13	Volume II Page No. 902 item no. 18		Preferred Makes of Electrical	DISTRIBUTION BOARDS → SIEMENS/ SCHNEIDER/ LEGRAND/ L&T HAGER / ABB/	DISTRIBUTION BOARDS → SIEMENS/ SCHNEIDER/ LEGRAND/ L&T /HAGER / ABB

14. Specification for Router and revised specifications for Access switches

1. Router: -

Category	Features
General Features	From day one the Device should support termination of MPLS as well as Internet links (in future if needed) and must be able to use both the links for traffic. Any failure of a link must result in steering traffic on another link without any manual intervention.
	Device should have Internal hot swappable power supply with 1+1 redundancy
	The Device must support minimum 6000 concurrent IPsec tunnel to support full mesh/partial mesh topology
	Device should include a minimum 2 Gbps IPsec throughput
	Device should support minimum 10 Gbps IPv4 forwarding throughput.
	Device should support minimum 3 million IPv4 & 2Million IPv6 routes.
Scalability	From 2nd year the solution should support minimum 2Gbps SD-WAN throughput without hardware change
Interfaces	Device should support 4x 1/10G SFP+ ports and 8 X 1GE SFP ports from day 1. These should be WAN ports
	Device should have 1x RJ45 console port for management
	All the LAN/WAN ports should be in compliance with 802.3 standards
Encapsulation	Generic Routing Encapsulation; 802.1q VLAN; PPP; PPPoE
Security	DES, 3DES, AES-128, or AES-256
Networking and Routing	System should be able to support BFD, VRRP/HSRP, VRF/Multi-VRF, MPLS-L3VPN, DHCP.
	Device Should support Static NAT, Dynamic NAT, NAPT
	System should be able to support IPv6 and IPv4 routing protocols like, BGP, OSPF and Static routing.
	Should support QoS Classification, Prioritization, DSCP remarking, shaping, scheduling, policing.
	Proposed router should support SD-WAN functionality as well without changing the hardware in the setup.
	Device should be able to support PIM SM across SD-WAN, PIM SM with neighbour support on LAN and WAN interfaces, PIM SSM, PIM SM Bootstrap RP, PIM Rendezvous- Point, IGMP v2/v3
Certifications	Device shall confirm to CB IEC 60950-1 or CB IEC 62368-1 Standards for Safety requirements of Information Technology Equipment

Category	Features
	Device shall conform to EN 55032 or EN 55024 or VCCI-CISPR 32 Standards for EMC (Electro Magnetic Compatibility) requirements.

2. Access Switches: 48 Port Non- POE switch –

S.NO	Technical Specifications
1	Switch should be 1U and rack mountable in standard 19" rack.
2	Switch should support internal field replaceable unit redundant power supply from day 1.
3	Switch should have minimum 2 GB RAM and 4 GB Flash or better.
4	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.
	Performance :
5	Switch shall have minimum 392 Gbps of switching fabric and 290 Mpps of forwarding rate or better.
6	Switch shall have minimum 16K MAC Addresses and 250 active VLAN.
7	Should support minimum 11K IPv4 routes or more
8	Switch shall have 1K or more multicast routes.
9	Switch should support atleast 16K flow entries or better.
10	Switch should support 128 or more STP Instances.
11	Switch should have 6MB or more packet buffer.
	Functionality :
12	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.
13	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1
14	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs.
15	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.
16	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .
17	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.
18	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.
19	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.

S.NO	Technical Specifications
20	During system boots, the system's software signatures should be checked for integrity. System should be capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.
	Interfaces
21	Switch shall have 48 nos. 10/100/1000 Base-T ports and additional 4 nos. SFP+ uplinks ports.
	Certification:
22	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.
23	Switches, Router, Transreceivers, Wireless Controller and Access Points should be from the same OEM.
24	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.
25	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.
26	The Switch should be supplied with 5 year of warranty.

1. Access switch 24 Port Non- POE switch –

S.NO	Technical Specifications
1	Switch should be 1U and rack mountable in standard 19" rack.
2	Switch should support internal field replaceable unit redundant power supply from day 1.
3	Switch should have minimum 2 GB RAM and 4 GB Flash or better.
4	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.
	Performance :
5	Switch shall have minimum 128 Gbps of switching fabric and 95.23 Mpps of forwarding rate or better.
6	Switch shall have minimum 16K MAC Addresses and 250 active VLAN.
7	Should support minimum 11K IPv4 routes or more
8	Switch shall have 1K or more multicast routes.
9	Switch should support atleast 16K flow entries or better.
10	Switch should support 128 or more STP Instances.
11	Switch should have 6MB or more packet buffer.
	Functionality :
12	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.

S.NO	Technical Specifications
13	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1
14	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs.
15	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.
16	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .
17	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.
18	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.
19	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.
20	During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.
	Interfaces
21	Switch shall have 24 nos. 10/100/1000 Base-T ports and additional 4 nos. SFP+ uplinks ports.
	Certification:
22	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.
23	Switches,Router,Transreceivers,Wireless Controller and Access Points should be from the same OEM.
24	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.
25	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.
26	The Switch should be supplied with 5 year of warranty.

2. Access switch 24 port POE switch –

S.NO	Technical Specifications
1	Switch should be 1U and rack mountable in standard 19" rack.




S.NO	Technical Specifications
2	Switch should support internal field replaceable unit redundant power supply from day 1.
3	Switch should have minimum 2 GB RAM and 4 GB Flash or better.
4	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.
	Performance :
5	Switch shall have minimum 272 Gbps of switching fabric and 214 Mpps of forwarding rate or better.
6	Switch shall have minimum 16K MAC Addresses and 250 active VLAN.
7	Should support minimum 11K IPv4 routes or more
8	Switch shall have 1K or more multicast routes.
9	Switch should support atleast 16K flow entries
10	Switch should support 128 or more STP Instances.
11	Switch should have 6MB or more packet buffer.
	Functionality :
12	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.
13	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1
14	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs.
15	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.
16	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .
17	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.
18	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.
19	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.
20	During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.
	Interfaces
21	Switch shall have 16 nos. 10/100/1000 Base-T ports and additional 8 nos port port supporting 100MB/1G/2.5G/5G/10G.Switch should also havel 4 nos. SFP+ uplinks ports.
22	All 24 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 370 W.



S.NO	Technical Specifications
	Certification:
23	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.
24	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.
25	Switches,Router, Transreceivers,Access Points and Wireless Controller should be from the same OEM.
26	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.
27	The Switch should be supplied with 5 year of warranty.




Note:

1. The minor specifications may vary from make to make. However approval of change of makes of IT equipment if any will be decided by DoIT&C- IT team on merit for variations in specifications as per need at the time of giving approval looking to present & future requirements within the specifications mentioned in RFP in interest of Project.
2. The bidder can supply items having better specs mentioned above on the rates quoted by them. No additional cost will be given for advance specification if supplied other than specification mentioned.
3. CCTV & LAN passive preferred makes is different from preferred makes of BMS and other items mentioned in BOQ. For passive copper & fibre networking infrastructure preferred makes are Commscope, Corning & Panduit.






15. Landscape






Sl. No.	Item Description	Reference:
1	2	3
1	Supply and fixing of grey bijolia stone (20mm TH.), on Toe Wall coping (dressed and rubbed) in all respect	
2	PART -B GAZEBO	
3	Supply & installation of marine grade polysteel modular GAZEBO, circular shape & elevation as per the attached design, made of UV stabilized class-1 fire retardant polyster composite with glass fibre reinforcement of 750GSM, self coloured, textured surface finish with scratch resistant aliphatic grade UV stabilized polyurethane paint; Inner frame work made of mild steel hot dip galvanized; All hardwares are to be of stainless steel. To be \individually hand crafted to replicate steel and cast iron and to be installed with ground using foundation bolts. as per conceptual picture attached RFP.Each structure of aprox. 5000 kg	
4	PART -C PERGOLA	
5	Supply & installation of marine grade polysteel modular pergola, rectangular shape & elevation as per the attached design, made of UV stabilized class-1 fire retardant polyster composite with glass fibre reinforcement of 750GSM, self coloured, textured surface finish with scratch resistant aliphatic grade UV stabilized polyurethane paint; Inner frame work made of mild steel hot dip galvanized; All hardwares are to be of stainless steel. To be \individually hand crafted to replicate steel and cast iron and to be installed with ground using foundation bolts as	






Sl. No.	Item Description	Reference:
	per conceptual picture attached RFP. Each structure of aprox. 7000 kg	
6	Supply & installation of Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately . Each structure of aprox. 5000 kg	
7	Supply and fixing of Pergolas in 100 *50 mm MS hollow sections; including MS posts of 100 *100 mm duly fixed and bolted with red oxide and painted in specified colour.	
8	PART -D SITTING DETAILS (12 NOS.)	





Sl. No.	Item Description	Reference:
9	Supply and fixing of aluminium extrude section of 100mm x 50mm (in black(RAL) finish powder coated) closed with cap on both edges.	
10	PART -E SITTING DETAILS (2 NOS.)	
11	Providing and fixing of black / brown granite(18mm TH.) on brick Wall (external face), including coping ,clamps and grooves complete in all respect	
12	PART -F SITTING DETAILS (10 NOS.)as per conceptual picture attached RFP	
13	Providing and fixing of black granite(18mm TH.) of honed finish on brick Wall (external face), including coping ,clamps and grooves complete in all respect	
14	Providing and fixing of grey granite(18mm Thk.) on brick Wall (external face), including coping ,clamps and grooves complete in all respect	
15	PART -G INDOOR/OUTDOOR POTS	
16	Supplying and fixing of potted plants FRP POTS (from CREDO or similar)including cocopit, plants ,complete in all respect.	






Sl. No.	Item Description	Reference:
17	csw 14.1 (DA GREY)_ATTR VIS(30" dia and of 27"height)	 <p>DA Grey</p>
18	csw 25.1 (DA GREY)_CL PER(18"x18"and of 18"height)	 <p>DA Grey</p>
19	CSW 5.1 (DA GREY)_ROU COMPE(22" dia and of 15"height)	 <p>DA Grey</p>
20	CSW 23.1 (BLACK)_CAV SLI(30"x25" and of 14"height)	 <p>Black</p>
21	PART -H HORTICULTURE WORKS	
22	Supplying and planting of trees , shrubs , hedges, palms, groundcovers, creepers etc. including digging of pits , refilling with manure & good earth , anti termite treatment.	





Sl. No.	Item Description	Reference:
23	Date Palm (8' stem)	
24	Plumeria Alba (8'-10')	
25	Terminalia (12')	
26	Tabebuia Avellanedae (10')	
27	Tabebuia Argentea (10')	




Sl. No.	Item Description	Reference:
28	Erythrina Indica (8')	
29	Bahunia Blakeana (10')	
30	Murraya exotica (2')	
31	Bougainvelia Globra (1')	
32	Jatropha (2')	




Sl. No.	Item Description	Reference:
33	Tecoma Gudhi Choudhi(4')	
34	Calliandra (3')	
35	Nerium drawf (1')	
36	Bombex ceiba (12')	
37	Fountain grass (2')	


Sl. No.	Item Description	Reference:
38	Spaider Lily (1')	
39	Pandanus grass (6")	
40	Zephyranthus Lily (4")	
41	Ixora Singapornisis (3')	




Sl. No.	Item Description	Reference:
42	Chandini Dwarf (1')	
43	Hibiscus(1')	
44	Tecoma dwarf (1')	
45	Lecophyllum (1')	
46	POTTED PLANTS	
47	Bougainvelia (4')	

Sl. No.	Item Description	Reference:
48	Plumeria Singapuri(4')	
49	Ficus Panda(5') In topper bunches	
50	Ravenue Palm(4')	
51	Phonix Palm(4')	
52	Cocopit each bag of 25 kg	
53	Vermi Compost each bag of 50 kg	

Sl. No.	Item Description	Reference:
54	grass selection no.1 (450mm x 450mm x75) tile layed in soft soil	
55	Providing and instllation of BROWN GRAVEL (0'-4")(HT. OF GRAVEL BED)	
56	Providing and laying of PEBBLE in black and grey color of 60-75mm approx	
57	PART -I WATER FOUNTAINS (01 NOS)	
58	Random rubble dry stone Kharanja as under base	
59	providing and installation of Kota / grey bijolia stone 20mm thk slabs exposed face dressed and rubbed.	
60	Supply and fixing of water fountain of 6.00mtrX3mtr with following item and specifications with complete internal plumbing (cpvc pipe and fitting for water feature)and electrical works	
61	WFNSeries-nozzle , Type:geyser nozzle for back stage , size 1/2" of SS finish	
62	Angular Valve	
63	WSP Series Submersible pump: 3 phase (kirloskar make) ,WSP 5.00(5HP-SP/60KLPH)	
64	WLED Series LED Light :WLED 12W- 12V (warm white or 3000k)(IP:69)	
65	WEB Series ABS Eye Bull Nozzle of black of EMAUX make.	

Sl. No.	Item Description	Reference:
66	WCP-EP Series Electric Control Panel with suitable accessories :Automation on/off, indicator , switches, analog ameter, voltmeter, lux, fariles MCB, OLR and Connector etc of make L&T or equivalent	
67	WLT SeriesLED Transformers:operating voltage12vDC-12W	
68	PART- J SIGNAGE	
69	Supply and installation of ARTISTIC SIGNAGE (white marble stone of 1500mmx2100mm 200mm th with water jet cutting of 12 mm filled with antique brass finish of 16gauge th)with proper bed preparation in ramped soil with 100 mm M20pcc	
70	TOTEM SIGNAGE: Design, composition, Supply and installation of structural steel frame made out of medium duty 50mm square pipe section, red oxide primer with two coat of synthetic enamel painting, providing and fixing 3/4mm thick polycarbonate sheet with 40% translucency, with graphics on single side digitally printed on UV cured 3M media or 3M external grade binly totems to be intenally illuminated with LED paower module double side, high output 7100k numbers as perdsign, 140 degree at the distance .	
71	PART- K SCULPTURE	
72	Supply of sculpture of human of 7.5' height statue with art work finish. Fabrication work in 2 inch square pipr.3mm thickness in all parts of statue (tail,body,head) for solid strength.polyurethane foam filling in statue Die plastic and fiber coat finish at outer surface with 3 coats.fire resistant coating atfull statue.base stand in ms 1.5 feet square plate in 3mm thickness. the sculpture will be	

Sl. No.	Item Description	Reference:
	supplied as per indicative picture given in the tender document	
73	Supply of Sculpture Of a SWAN of 4.5 ' Height Statue with art work finish in artistic Silver colour. Polyurethane foam filling in statue. Fabrication work in 2 inch square pipe. 3 mm thickness in all parts of statue (tail, body , head) for solid strength. Plastic and fiber coat finish at outer surface with 3 coats. Fire resistant coating at full statue. Base stand in ms. 1.5 feet square plate in 3mm thickness. The sculpture will be supplied as per indicative pictures given in the tender document .	
74	PART - L IRRIGATION	
75	Piping Network - PVC Providing fixing , installation and testing with trenching and Back filling mainline 600 mm and Submain 450 mm in depth of PVC pipes (IS:4985-88), and fittings & Accessories like tees, elbows, bends, junctions, Reducers etc of 10kg/cm ² pressure; as required/directed at site ,	
76	PVC Pipe 90 mm x 6 kg/cm ²	
77	PVC Pipe 75 mm x 6Kg/cm ²	
78	PVC Pipe 63 mm X 6kg/cm ²	
79	PVC Pipe 50 mm X 6kg/cm ²	
80	PVC Pipe 40 mm X 6kg/cm ²	
81	Filteration Unit SITC of Disc Filter, 80/110 Micron with all required Accesories	
82	Providing and Fixing of Manual Cleaning Screen Filter capacity of 50 m ³ /h 3"	
83	Providing and Fixing of G.I. Header with 3 Butterfly Valve	

Sl. No.	Item Description	Reference:
84	Providing and Fixing of Road Sleeve of various sizes	
85	Trenching & Back Filling with Installation Charges of 450mm x600m with compacting of soil base	
86	PART -M STONE BOULDERS	
87	Providing and laying of 4-5 Tonns of weight of stone boulders (random shaped) on ramped earth(with M15 PCC)as per approval .	
88	PART - N GEBION WALL	
89	Providing and installation of MSteel work welded,in built up sections framed work including cutting,hoisting, fixing in position and applying priming coat of redlead paint in columns, beams and joists, channels , anglestees plates with connecting plates or angle cleats.	
90	Supply and installation of 100 -120mm dia. Pebbles contained in wire mesh structure for gabion wall.	
91	Supply and installation of Wire mesh (60 mmx80 mm)2 mm dia wire & 2.2 mm binding wire 12 guage containing pebbles.	
Grand Total		-

16. Base price of Civil and Landscape items

BASIC RATE OF FINISHING MATERIAL			
RIAL & INNOVATION HUB, JAIPUR			
BOQ Item No	Item Description	Finishing Material	Basic Rate of Finishing Material as mentioned in column c (per sqm)
a.	b	c	d
41	Providing and fixing external grade board solid core flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete as per annexure 'A' including aldrop, mortice lock : 35 mm thick with decorative teak veneer with veneer polish both side. The rate shall include the work of pressed steel door frame conforming to IS 4351 manufactured from commercial mild steel sheet of 1.25 mm thickness including hinges jamb, lock jamb, bead and if required angle threshold of mild steel angle of section. size as per directed by Engineer-in-charge	Door Veneer	1200
50	P & F 1st quality fully body Vitrified Porcelain Polished tiles with skirting of size 600 x 1200mm height, 10 mm thick and on floor and steps etc.in different sizes (thickness to be specified by manufacturer) with water absorption less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with CM 1 : 4 as per drawing, Tiles will be laid with 2 mm gap using spacers and gap will be filled with matching color epoxy latictere Size 600 x 1200 mm.	(Size 600 x 1200 mm)	900
51	Providing and laying Antiskid Ceramic floor tiles of size 600x600 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, design and print as per selection laid on Cement Mortar 1:4 (1 Cement : 4 Coarse sand) as per drawing, including pointing the joints with white cement and matching pigments etc., complete.	Anti Skid ceramic tiles	600
52	P & F approved make & shade Full body Vitrified Wall tile with granite pattern, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with white cement slurry @ 3.3kg per Sq.mt, including pointing in white cement mixed with pigment of matching shade complete. It Should be antiskit smooth surface polished. Size 600 x 600 mm.	(Size 600 x 600 mm)	800

BASIC RATE OF FINISHING MATERIAL			
RIAL & INNOVATION HUB, JAIPUR			
BOQ Item No	Item Description	Finishing Material	Basic Rate of Finishing Material as mentioned in column c (per sqm)
a.	b	c	d
53	Providing & laying sandwich platform / water trough (sandwich of 18 mm thk Granite of approved shade and sample on top and 25 mm thk kota in bottom with 30 mm thk screed of (1:2:4) in between)with sandwich supports of 25 mm thk two kota on sides and screed in between and 75 mm raised platform with kota on top as per design and approved sample for all floors / all levels / all heights. The rate includes rounding, champhering and mirror polishing of edges, facias of granite, including necessary bonding adhesive like Araldite or equivalent. (Only plan area shall be measured and paid for). Rate shall be inclusive of making holes & cutouts for SS sink, Ovel wash basin, Piller tap, Bib tap-couplin etc. complete.	Granite	2300
54	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over base cement mortar 1:4 (1 cement : 4 coarse sand) as per drawing, joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Granite of any colour and shade.	Granite	2300
57	Kotah stone slab flooring with skirting of 100 mm height width factory cut, factory polished over base of cement mortar 1:6 (1 cement : 6 coarse sand) laid over & jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing complete For area of each slab from 2001 to 5000 Sq.Cm	Kota	550
58	Providing and fixing Green / Black Granite stone slab mirror polished and machine edge cut in walls, pillars, steps, Shelves, Sills Counters, Floors etc. laid on base of cement mortar 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete and making grooves in stairs and filling it by aluminium strips and edge moulding of each steps.	Granite	2300

BASIC RATE OF FINISHING MATERIAL			
RIAL & INNOVATION HUB, JAIPUR			
BOQ Item No	Item Description	Finishing Material	Basic Rate of Finishing Material as mentioned in column c (per sqm)
a.	b	c	d
91	Fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:4 (1cement : 4 coarse sand) with joints finished flush. Red Sand stone(Jodhpur stone) size not less than 1350 Cm2 - b) 50mm	Jodhpur Stone	550

BoQ 13 item No.	Landscape Item Description	Finishing Material / product	Basic Rate of Finishing Material as mentioned in column c
a	b	c	d
2	Supply and fixing of grey bijolia stone (20mm TH.), on Toe Wall coping (dressed and rubbed) in all respect	Bijolia Stone	INR 950 per sq m
12	Providing and fixing of black / brown granite(18mm TH.) on brick Wall (external face), including coping ,clamps and grooves complete in all respect	Black and brown Granite	INR 1500 per sqm
14	Providing and fixing of black granite(18mm TH.) of honed finish on brick Wall (external face), including coping ,clamps and grooves complete in all respect	Black Granite	INR 1500 per sqm
15	Providing and fixing of grey granite(18mm Thk.) on brick Wall (external face), including coping ,clamps and grooves complete in all respect	Grey Granite	INR 1100 per sqm
18	csw 14.1 (DA GREY)_ATTR VIS(30" dia and of 27"height)	FRP pot	INR 11250 per piece
19	csw 25.1 (DA GREY)_CL PER(18"x18"and of 18"height)	FRP pot	INR 3500 per piece
20	CSW 5.1 (DA GREY)_ROU COMPE(22" dia and of 15"height)	FRP pot	INR 5500 per piece
21	CSW 23.1 (BLACK)_CAV SLI(30"x25" and of 14"height)	FRP pot	INR 8500 per piece
60	providing and installation of Kota / grey bijolia stone 20mm thk slabs exposed face dressed and rubbed.	Brown Kota Stone	INR 650 per sqm
73	Supply of sculpture of human of 7.5' height statue with art work finish. Fabrication work in 2 inch square pipr.3mm thickness in all parts of statue (tail,body,head) for solid strength.polyurethane foam filling in statue Die plastic and fiber coat finish at outer surface with 3 coats.fire resistant coating atfull	Sculpture	INR 4,00,000 per piece

	statue.base stand in ms 1.5 feet square plate in 3mm thickness. the sculpture will be supplied as per indicative picture given in the tender document		
74	Supply of Sculpture Of a SWAN of 4.5 ' Height Statue with art work finish in artistic Silver colour. Polyurethane foam filling in statue. Fabrication work in 2 inch square pipe. 3 mm thickness in all parts of statue (tail, body , head) for solid strength. Plastic and fiber coat finish at outer surface with 3 coats. Fire resistant coating at full statue. Base stand in ms. 1.5 feet square plate in 3mm thickness. The sculpture will be supplied as per indicative pictures given in the tender document .	Sculpture	INR 10,00,000 per piece
88	Providing and laying of 4-5 Tonns of weight of stone boulders (random shaped) on ramped earth(with M15 PCC)as per approval .	Rough Stone marble/granite boulder	INR 20,000