

## ELECTRICAL ESTIMATE FOR POLO MARKET, SHILLONG, MEGHALAYA

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>1.0</b>		<b>POINT WIRING (SCHEDULE ITEMS)</b>						
1.1	29	Wiring in looping in system with 1.5mm <sup>2</sup> PVC wire in heavy gauge 16SWG 3/4 inch dia MS conduit pipe Including supplying and fitting of bends, tees, joints boxes etc as necessary complete with 5amp FT switch ceiling rose etc including earthing the conduit to light point.						
1.1.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	200	Each				
1.1.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	100	Each				
1.1.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	100	Each				
1.2	30	Wiring as in item No. 29 Complete to a Light Plug Point when fixed elsewhere .						
1.2.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	40	Each				
1.2.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	50	Each				
1.2.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	40	Each				
1.3	31	Wiring as in item No.29above with 2×4Sqmm wire including supplying and fitting 15Amp 5 in 1 /SS combined with continuous earth wire to a power plug point complete.						
1.3.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	100	Each				
1.3.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	30	Each				
1.3.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	20	Each				
1.4	32	Wiring as in item No.29 above to a Ceiling Fan/ Exhaust Fan Point.						
1.4.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	10	Each				
1.4.2		(b) Medium Point wiring upto 6mtrs						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		(i) With copper conductor	10	Each				
1.4.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	10	Each				
1.5	33	Wiring as in item No.29 above to wall Light Point						
1.5.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	40	Each				
1.5.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	10	Each				
1.5.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	10	Each				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
1.6	34	Wiring as in item No.29 above to a Calling Bell/Bell Indicator Point						
1.6.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	10	Each				
1.6.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	10	Each				
1.6.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	10	Each				
1.7	35	Wiring as in item No.29 above for Stair Case/Two Way Switch Light Point Controlled by 2 Nos, 2Way 5Amp Switches						
1.7.1		(a) Long Point wiring upto 10mts						
		(i) With copper conductor	60	Each				
1.7.2		(b) Medium Point wiring upto 6mtrs						
		(i) With copper conductor	10	Each				
1.7.3		(c) Short Point wiring upto 3mtrs						
		(i) With copper conductor	10	Each				
1.8	36	Drawing of Main and Sub-Main Line wiring approved VIR or PVC cable 250 V Grade in Heavy Gauge 16Swg MS Conduit Pipe With all necessary accessories						
		(c) With 2x6mm <sup>2</sup> copper wire						
1.8.1		(i) With copper conductor.	500	Mtrs.				
		(d) With 2x10mm <sup>2</sup> copper wire						
1.8.2		(i) With copper conductor.	400	Mtrs.				
1.9	37	Drawing 3 phase line 4 wire with approved VIR or PVC cable 660 V grade wire in Heavy gauge 16Swg E.T. conduit Pipe with all necessary accessories.						
1.9.1		(a) With 2x2.5mm <sup>2</sup> conductor in MS Conduit						
		(i) With copper conductor.	11000	Mtrs.				
1.9.2		(b) With 4x4mm <sup>2</sup> conductor in MS Conduit						
		(i) With copper conductor.	100	Mtrs.				
1.9.3		(c) With 4x6mm <sup>2</sup> conductor in MS Conduit						
		(i) With copper conductor.	500	Mtrs.				
1.9.4		(d) With 4x10mm <sup>2</sup> conductor in MS Conduit						
		(i) With copper conductor.	400	Mtrs.				
1.9.5		(e) With 4x16mm <sup>2</sup> conductor in MS Conduit						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		(i) With copper conductor.	500	Mtrs.				
1.10	134	Supplying & Drawing of the following size of PVC insulated Copper Wire, S/C in the existing surface/ recessed PVC/ M.S. conduit						
	(A)	2×1.5sqmm PVC Copper wire	15000	Mtrs.				
	(B)	3×1.5sqmm PVC Copper wire	11000	Mtrs.				
	(C)	3×4sqmm PVC Copper wire	8000	Mtrs.				
1.11	51	Supplying & fixing of Load Kontaket Miniature Circuit Breakers( MCBs)						
		(b) 6-32 Amp SP MCB Capacity	400	Each				
		(d) 40-80 Amp SP with Nuetral MCB Capacity	1650	Each				
		(e) 40-80 Amp TP with Nuetral MCB Capacity	1650	Each				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
1.12	52	Supplying fitting and fixing of Residual Current Circuit Brakes (RCCBs) with Earth Leakage protection.						
		(a) 16-63 Amp , 30-300m A	30	Each				
1.13	55	Supplying fitting and fixing of Single opening Metal Enclosure MCB Distribution Box.						
		(c) 12/16/24 Way	110	Each				
1.14	56	Supplying fitting and fixing of SPN/ TPN MCB Metal Enclosure Distribution Board.						
1.14.1		(b) 6 Way (8+18) Modules	10	Each				
1.14.2		(c) 8 Way (8+24) Modules	1	Each				
1.14.3		(d) 12 Way (8+36) Modules	10	Each				
		<b>TOTAL OF POINT WIRING CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>2.0</b>		<b>SUPPLY &amp; FIXING OF LIGHT FIXTURES &amp; FANS (SCHEDULE ITEMS)</b>						
		<b>NOTE - ALL THE LIGHT FIXTURE SAMPLE SHALL BE APPROVED BY ARCHITECT BEFORE PROCUREMENT OF LIGHT FIXTURE. ALL THE SAMPLE SHALL BE ARRANGED BY CONTRACTOR.</b>						
2.1	66	Supplying,fitting and fixing of LED lightings complete.						
		(b) LED Tube Light-Streak Series						
2.2		(i) 18-22W 1200mm	700	each				
		(c) LED Down Light						
2.3		(vi) LED Down Light 28-39W 8"	10	each				
		(g) LED panel Light						
2.4		(i) Recess Round 3-18W	10	each				
2.5		(iii ) Flat panel(2'X2') 36-48W	R.O.	each				
2.6		(iv) Surface Round 6-24W	10	each				
		(h) LED Street Light-Rodeo Series 25-150W						
2.7		(ii) (COB) 30W	5	each				
2.8	I	(i) LED Strip Lights	20	each				
		(j) LED Beam/Flood Lights-Rayon Series						
2.9		(ii)30-60W	10	each				
		(k) LED Decorative and Garden Light						
2.10		(i)Wall Light	10	each				
2.11		(ii)Garden Light	20	each				
2.12		(iii)Bollard Light	30	each				
2.13	78	Supplying and fitting of ceiling fan AC operated type 220/250 volt. Complete with 3 Nos of blades down rod canopy hanging shackle & regulator complete with 30mm length down rod supplied with the fan by the dealer but the extra length will be charged @ Rs25.00/ mtr						
		(b) AC ceiling Fan '1200'mm sweeps	10	each				
		<b>TOTAL OF LIGHT FIXTURES &amp; FANS CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>3.0</b>		<b>FIRE ALARM SYSTEM (ADDRESSABLE TYPE) &amp; PA SYSTEM (SCHEDULE ITEMS)</b>						
<b>(A)</b>		<b><u>FIRE ALARM</u></b>						
3.1	131.0	Addressable Fire Alarm and Conventional Fire Alarm Detection System as per P.W.D. Analysis Building (Electrical).						
3.1.1	(i)	Supply of intelligent, addressable twin angle optical smoke cum thermal heat - multisensor detectors (complete assembly)with inbuilt microprocessor, memory and decision algorithm,CPU failure mode, status indicator, with in built fault loop isolator and standard detector base with NO DIP/ ROTARY or Mechanical address switch but soft programmable. or alternatively Laser type spot multisensing detector.						
		Make:ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	180	Each				
3.1.2	(iv)	Supply of intelligent, addressable fixed temprature-cum -rate of rise heat detectors (complete assembly) with inbuilt microprocessor, memory and decision algorithm, CPU failure ode, status indicator. Including imported interchangeable base unit with built in loop isolator etc.						
		Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	5	Each				
3.1.3	(viii)	Suppling of wall mounted addressable type microprocessor based manual call point with built in loop isolator and all accessories complete as required.						
		Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	30	Each				
3.1.4	(ix)	Supplying of surface mounted loop powered Sounder cum flasher for fire alarm system with built in isolator complete as required. Sound output minimum upto85db.						
		Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	4	Each				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
3.1.5	(xi)	Supply, Installation Testing and Commissioning of wall/ floor-cum-wall/ 19" rack mountable micro processor based, interactive, modular, intelligent and adressable, networkable, programmable from PC or via on board keypad/ touch screen, expandable upto 4 loops main fire detection, control & indication Panel complete with CPU, LCD, display, operating terminal , detection loops, control loops, power supply module,battery charger dry cell maintenance free battery of suitable capacity with in built battery charger, housing complete as required. The panel shall be loaded with auto dialler for triggering alarm signals via SMS on at least 10 nos of mobile phones and 10 nos of direct telephone numbers as assigned and programmed for.						
		Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	1	Each				
3.1.6	(xiii)	supply of floor/ wall/ floor-cum-wall mounted micro processor based, interactive, modular, Intelligent and Network connected Fire Alarm Panel (40 loop capacity with 10Loop micromodule/ card) alongwith battery and battery charger having redundant CPU, networkable, programmable from PC or via on board keypad/ touch screen, upto 40 loops main fire detection, control & indication Panel complete with CPU, LCD, display, operating terminal , detection loops, control loops, power supply module,battery charger dry cell maintenance free battery of suitable capacity with in built battery charger, housing complete as required. The panel shall be loaded with auto dialler for triggering alarm signals via SMS on at least 10 nos of mobile phones and 10 nos of direct telephone numbers as assigned and programmed for.						
		Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	1	Each				
<b>TOTAL OF FIRE ALARM SYSTEM CARRIED OVER TO SUMMARY</b>								



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>4.0</b>		<b>DISTRIBUTION CABLES (SCHEDULE ITEMS)</b>						
4.1	102	Providing, Laying, Connection testing & commissioning of the following sizes of 1100V grade aluminium conductor armoured underground cable & overall PVC sheathed cable as per ISI code in trenches including the cost of digging of trenches, sand cushioning with laying etc and refilling the same in layers or by supporting them in walls and all other accessories as required.						
4.1.1		(a) With 3 1/2" Core 25sq.mm	500	pmtr				
4.1.2		(b) With 3 1/2" Core 35sq.mm	400	pmtr				
4.1.3		(c) With 3 1/2" Core 50sq.mm	50	pmtr				
4.1.4		(d) With 3 1/2" Core 70sq.mm	900	pmtr				
4.1.5		(e) With 3 1/2" Core 95sq.mm	300	pmtr				
4.1.6		(f) With 3 1/2" Core 120sq.mm	100	pmtr				
4.1.7		(h) With 3 1/2" Core 185sq.mm	2000	pmtr				
4.1.8		(j) With 3 1/2" Core 300sq.mm	100	pmtr				
4.2	101	Supplying, laying, testing & commissioning of underground cable of the following sizes of 1100volt grade, 2 core PVC aluminium cable along wall etc in ground including the cost of digging of trenches sand cushioning besides laying etc & refilling the same in layers or by supporting them on the wall						
4.2.1		(c) With 6 Sq.mm	500	pmtr				
4.2.2		(d) With 10 Sq.mm	1000	pmtr				
4.3	88	Providing supplying including carriage testing of the following sizes Aluminium armoured underground cable and all over PVC selected as per ISI mark of 1100volt grade						
4.3.1		(b) 4×6mm <sup>2</sup>	800	Pmtr				
4.3.2		(c) 4×10mm <sup>2</sup>	2000	Pmtr				
4.3.3		(d) 4×16mm <sup>2</sup>	1000	Pmtr				
		<b>TOTAL OF DISTRIBUTION CABLES CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>5.0</b>		<b>EARTHING, LIGHTNING PROTECTION &amp; SAFETY EQUIPMENT SYSTEM (SCHEDULE ITEMS)</b>						
5.1	108	Supplying fitting & fixing earthing with copper earth plate 600×600mm×6mm thick including accessories & providing masonry enclosure with cover plate having locking arrangement & watering pipe etc with charcoal , salts etc complete as required	10	Sets				
5.2	107	Supplying, fitting and fixing earthing with GI earth Plate 600m×600×6m thick including all accessories & providing masonry enclosure with cover plate having locking arrangement & watering pipe etc complete with charcoal salt coke as required	20	Sets				
5.3	104	Supplying and laying of 15mm ×5mm GI/Copper Strip at 0.50mts, below ground.						
5.3.1		(a) With 25mm×5mm copper strip	200	Mtrs.				
5.3.2		(d) With 25mm×6mm GI Strip	1000	Mtrs.				
5.4	103	Supplying fixing connection testing of 8-SWG wire along the wall, columns etc, with necessary clamping as required						
5.4.1		(b) With G.I. wire	2000	Mtrs.				
5.5	106	Supplying fitting and fixing earthing with GI pipe of 200cm length 40mm dia. Including all accessories & providing masonry enclosure with cover plate having locking arrangement etc with charcoal salt complete as required	4	Set				
		<b>TOTAL OF EARTHING, LIGHTNING PROTECTION &amp; SAFETY EQUIPMENT SYSTEM CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
6.0		<b>POINT WIRING (NON SCHEDULE ITEMS)</b>						
6.1	NSR	Supplying, Installation, Testing and Commissioning of Movement detectors (Infrared Type) Inbuilt ambient light sensor with adjustable lux level 5 to 600 lux, adjustable time delay from 1 minute to 15 minute, adjustable detection range 0 to 12 meter. The movement detector shall have lens, 360 deg and coverage area shall not be less than 48 sq. meter if height is 2.7 meter. The contact rating shall be suitable for 2000 watt light load.	100	Nos				
6.2	NSR	Supply, Installation, Testing & Commissioning of 1P, 2 module surge protection device complete as required.	10	Set				
6.3		Supply & fixing of following size <b>(GI RACEWAY- Fabricated from GI Sheet)</b> race ways for electrical & LV wiring including neoprene gasket in joints, cutting the floor & jaming the race way / hanging in ceiling, supporting arrangement as approved by consultant / architect with all necessary hard ware (including civil work) as per site requirement. The thickness of raceway & cover shall be as per technical specification.						
6.3.1	NSR	100 mm wide x 40 mm deep.	200	Meter				
6.3.2	NSR	150 mm wide x 40 mm deep.	100	Meter				
6.3.3	NSR	200 mm wide x 40 mm deep.	50	Meter				
6.3.4	NSR	250 mm wide x 40 mm deep.	100	Meter				
6.3.5	NSR	300 mm wide x 40 mm deep.	100	Meter				
6.4		Supply & fixing of following size of Raceway Junction Box made out of GI Sheet for electrical & LV wiring including, cutting the floor & jaming the junction box / hanging in ceiling, supporting arrangement as approved by consultant / architect with all necessary hard ware (including civil work).(Junction box to be provided as per drawing/ as per site requirement & as per specification). The thickness of junction box shall be a as per thetechnical specification.						
6.4.1	NSR	150 mm wide x 50 mm deep.	30	Set				
6.4.2	NSR	200 mm wide x 50 mm deep.	20	Set				
6.4.3	NSR	250 mm wide x 50 mm deep.	10	Set				
6.4.4	NSR	300 mm wide x 50 mm deep.	20	Set				
6.4.5	NSR	350 mm wide x 50 mm deep.	20	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
6.5	DSR 2016 1.20	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.						
6.5.1	DSR 2016 1.20.1	20 mm	19000	Meter				
6.5.2	DSR 2016 1.20.2	25 mm	13000	Meter				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
6.6	DSR 2016 1.21	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.						
6.6.1	DSR 2016 1.21.1	20 mm	7000	Meter				
6.6.2	DSR 2016 1.21.2	25 mm	11000	Meter				
		<b>TOTAL OF POINT WIRING CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>7.0</b>		<b>SUPPLY &amp; FIXING OF LIGHT FIXTURES &amp; FANS (NON SCHEDULE ITEMS)</b>						
7.1	NSR	Supplying, installation, testing & Commissioning of Self contained emergency light units 1x3 watt double sided for wall / ceiling mounting with suspension / mounting kit, inbuilt standby battery (for 2 hours backup) and battery charger etc. in suitable enclosure. Make - Bajaj, Cat No- BESL 03 LED DSD WBB Green or equivalent.	60	Each				
7.2	NSR	Supply, Installation, Testing & Commissioning of Light Fixture surface mounted. (Philips make cat no- WT202 LED6S NW PSU S2 PC or equivalent.)	400	Nos				
7.3	NSR	Supply, Installation, Testing & Commissioning of LED Step Light 15 watt, Philips make, cat No- BWG150 LED50/WWPSU 220-240V IP67 7043 or equivalent.	30	Nos				
7.4	NSR	Supply, Installation, Testing & Commissioning of 1x9 watt LED Mirror light fixture wall mounted with electronic high efficiency electronic driver as complete as required. (Philips Make, Cat No- 31083 shell line or equivalent).	40	Nos				
7.5	NSR	Supply, Installation, Testing & Commissioning of Ondo T LED 20000-840 ET 03 Round wide-area LED high bay luminaire for suspended mounting. For suspended mounting as single luminaire. Single point suspension to centrally integrated fixing hooks. Optical system with PC lens optic. Each LED module has own optical unit. Optimised luminance contrasts due to homogeneous, light-scattering diffuser panel. With rotationally symmetric narrow light distribution. Luminaire luminous flux 19700 lm, connected load 184 W, luminous efficiency of luminaire 107 lm/W. Light colour neutral white, colour temperature 4000 K, colour rendering index Ra > 80. Service life L80(tq 25 °C) = 50,000 h, service life L70(tq 25 °C) = 60,000 h. Robust die-cast housing with integrated cooling ribs, Colour silver. Permissible ambient temperature (ta): -25 °C - +35 °C. Safety class I, protection rating IP65, impact resistance IK08/5 J, glow wire resistance 850 °C. Mains connection is achieved via a 3-pole connection cable, With electronic transformer, switchable. (Trilux Order code 6574940 or equivalent).	20	Nos				
7.6	NSR	Supply, Installation, Testing & Commissioning of Linear Channel recessed 28 W 2600 lm Ra>80 4000K LxWxH (1200X65X35) 90 lm/w efficacy 50,000 burning hours service life.	10	Nos				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
7.7	NSR	Supply, Installation, Testing & Commissioning of suspended mounting as single luminaire. Suspension length consists of 400-1750 mm. With Binary Light Guide System (BLGS). Optical system consisting of two fine-prismatic PMMA covers for light emission, one above the other. With direct-indirect light distribution. Indirect component with extremely wide distribution. VDU-compliant according to EN 12464-1. LED system with lateral entry of light in the Binary Light Guide System. Luminaire luminous flux 6400 lm, connected load 53 W, Light colour neutral white, colour temperature 4000 K, colour rendering index Ra > 80. Service life L80(tq 25 °C) = 70,000 h, service life L85(tq 25 °C) = 50,000 h. Luminaire body of extruded aluminium profile, End caps of die-cast aluminium. Luminaire body white powder-coated. Dimensions (L x W): 1175 mm x 338 mm, luminaire height 16 mm. Permissible ambient temperature (ta): -20 °C - +25 °C. Safety class I, protection rating IP20, impact resistance IK02/0,2 J, glow wire resistance 650 °C. No separate cable is required for luminaire power supply. Power supply via the wire suspensions. Wire suspension included in the scope of supply. With electronic transformer, digitally dimmable (DALI). Ballast and connection elements are located outside the luminaire body in the ceiling connection unit. White ceiling rose included in scope of supply. (Trilux Order code 6348751 or equivalent).	2	Nos				
7.8	NSR	Supply, Installation, Testing & Commissioning of Integral LED aviation light comprising of aluminium housing with polycarbonate enclosure with flasher suitable for 230V AC complete with fitting including photochromatic switch for automatic ON/OFF of Aviation lights complete as per bajaj make or approved equivalent.	2	Nos				
<b>TOTAL OF LIGHT FIXTURES &amp; FANS CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
8.0		<b>FIRE ALARM SYSTEM (ADDRESSABLE TYPE) &amp; PA SYSTEM (NON SCHEDULE ITEMS)</b>						
8.1		<b>FIRE ALARM</b>						
8.1.1.	NSR	Supply, Installation, Testing & Commissioning of EN-54 Compliant, Vds & FM approved, Active Repeater Panel / Remote Terminal with mounting bracket and required installation accessories. The remote terminal shall facilitate monitoring & control of fire events from pre-decided strategic location away from the main FACP. The remote terminal shall facilitate monitoring and control of fire events for each and every device connected to the FACP. It shall have 6 lines x 40 characters display. Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	1	Set				
8.1.2.	NSR	Supply, Installation, Testing & Commissioning of EN-54 Compliant, Vds & FM approved, addressable Monitor Module with inbuilt Turbo Isolator. The monitor module shall have LED indication for Normal, Fault, Test & Alarm activation. The Monitor Module shall be quoted with required junction box and mounting accessories. The module shall have IP40 protection. Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	10	Nos				
8.1.3	NSR	Supply, Installation, Testing & Commissioning of EN-54 Compliant, Vds & FM approved, addressable Output Module with inbuilt Turbo Isolator. The module shall have LED indication for Normal, Fault, Test & Alarm activation. The Module shall be quoted with required junction box and mounting accessories. The module shall have IP40 protection. Make: ESSER/ GENT/ APOLO/ SYSTEM SENSOR/ SIEMENS	10	Nos				
8.1.4	NSR	Supply Installation, Testing & Commissioning of Response Indicator single LED / 2 LED.	10	Nos				



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
8.2		<b>PUBLIC ADDRESS SYSTEM</b>						
		SITC of EN54-16 compliant IP Based Digital Public Address & Voice Alarm system. The selected system devices like controllers and Paging Microphones, should use the TCP/IP technologies and build on the standard network platform to ensure expandability. The individual systems should be able to play 4 simultaneous audio messages and also be able to be networked over IP such that the PA systems in all 10 towers work seamlessly						
8.2.1	NSR	SITC of 8 zone IP based, digital Voice Alarm controller expandable upto 128 zones. The voice alarm controller should be able to connect directly over Ethernet. It should have functions like the audio playing, zone control, fault monitoring, log recording, volume control and amplifier switchover. The Voice alarm controller should also have the following functions: <ul style="list-style-type: none"> <li>. 255 Priorities</li> <li>. Time schedule broadcasts</li> <li>. Its own PTT microphone</li> <li>. Capable of amplifier redundancy</li> <li>. 8 trigger inputs/outputs</li> </ul> Approved Makes : Bosch Praesedio / Honeywell - X618/ Ateis - IDA	1	Set				
8.2.2	NSR	SITC of 2x250W Class-D Amplifier with 2 independent channels and can provide automatic re-settable overcurrent, overload, overheating, overvoltage, under-voltage and DC protection Approved. Makes : Bosch Praesedio / Honeywell - X618/ Ateis - IDA	4	Set				
8.2.3	NSR	SITC of IP based Networkable touch screen paging station for selection of zones, supervision of system status, setting of scheduled broadcasts with the following functions: <ul style="list-style-type: none"> <li>. Built-in monitoring loudspeaker</li> <li>. Detachable goose-neck microphone</li> <li>. LCD touchscreen display</li> <li>. Audio input</li> <li>. 4.3" display</li> </ul>	1	Set				
8.2.4	NSR	Supply Installation Testing and Commissioning of 6W ceiling mount with max SPL1M/1W 96dB . Frequency response of 160Hz-20KHz. The speaker should have tapings at 6W/3W.	230	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
8.2.5	NSR	Supply Installation Testing and Commissioning of 19" MS Rack Suitable to house the above required equipments, With Glass Door, Side Openable, Cooling arrangement, Wheels and brakes.	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
8.2.6	NSR	Supply Installation Testing and Commissioning of 6/3 Watt Wall Mounted Speaker with frequency response of 85Hz-20KHz capable of a Max SPL of 95dB with Line matching transformer, complete with mounting accessories as required.	10	Set				
8.2.7	NSR	Supply Installation Testing and Commissioning of 12 Watt volume controller with G.I. Box, modular plate etc as complete as required.	40	Set				
8.2.8	NSR	Wiring for PA system with the following sizes of PVC insulated copper conductor twisted cables in existing surface/recessed M.S. conduit etc. as complete as required.						
		2 x 1.5 sq.mm twin twisted PVC copper wire	5900	Meter				
<b>TOTAL OF FIRE ALARM SYSTEM &amp; PA SYSTEM CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>9.0</b>		<b>DISTRIBUTION CABLES (NON SCHEDULE ITEMS)</b>						
9.1	DSR 2016 4.1	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.						
9.1.1	DSR 2016 4.1.1	100 mm x 50 mm x 1.6 mm.	100	Mtrs.				
9.1.2	DSR 2016 4.1.2	150 mm x 50 mm x 1.6 mm.	900	Mtrs.				
9.1.3	DSR 2016 4.1.4	300 mm x 50 mm x 1.6 mm.	400	Mtrs.				
9.1.4	DSR 2016 4.1.6	450 mm x 50 mm x 2.0 mm.	100	Mtrs.				
9.1.5	DSR 2016 4.1.16	900 mm x 75 mm x 2.0 mm.	50	Mtrs.				
9.2	DSR 2016 4.2	Supplying and installing following size of perforated pre-painted M.S. cable trays bends with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.						
9.2.1	DSR 2016 4.2.1	100 mm x 50 mm x 1.6 mm.	10	Each				
9.2.2	DSR 2016 4.2.2	150 mm x 50 mm x 1.6 mm.	30	Each				
9.2.3	DSR 2016 4.2.4	300 mm x 50 mm x 1.6 mm.	20	Each				
9.2.4	DSR 2016 4.2.6	450 mm x 50 mm x 2.0 mm.	10	Each				
9.2.5	DSR 2016 4.2.16	900 mm x 75 mm x 2.0 mm.	10	Each				
9.3	DSR 2016 4.2	Supplying and installing following size of perforated pre-painted M.S. cable trays reducers with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.						
9.3.1	DSR 2016 4.3.2	150 mm x 50 mm x 1.6 mm.	12	Each				
9.3.2	DSR 2016 4.3.4	300 mm x 50 mm x 1.6 mm.	24	Each				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
9.3.3	DSR 2016 4.3.6	450 mm x 50 mm x 2.0 mm.	16	Each				
9.3.4	DSR 2016 4.3.16	900 mm x 75 mm x 2.0 mm.	8	Each				
9.4	DSR 2016 4.4	Supplying and installing following size of perforated pre-painted M.S. cable trays Tee's with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.						
9.4.1	DSR 2016 4.4.2	150 mm x 50 mm x 1.6 mm.	10	Each				
9.4.2	DSR 2016 4.4.4	300 mm x 50 mm x 1.6 mm.	22	Each				
9.4.3	DSR 2016 4.4.6	450 mm x 50 mm x 2.0 mm.	18	Each				
9.4.4	DSR 2016 4.4.16	900 mm x 75 mm x 2.0 mm.	8	Each				
9.5		Supply & Laying of following sizes of 1.1KV grade multistranded copper conductor PVC insulated cable including termination complete as required in existing cable tray.						
9.5.1	NSR	1C x 25 sq.mm PVC Insulated cu wire including termination etc.	100	Meter				
9.5.2	NSR	1C x 50 sq.mm PVC Insulated cu wire including termination etc.	200	Meter				
<b>TOTAL OF DISTRIBUTION CABLES CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>10.0</b>								
10.1	DSR 2016 5.20	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	250	Mtrs.				
10.2	DSR 2016 5.15	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	1000	Mtrs.				
10.3	NSR	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, G.I. tube, having single prong at top, with 85 mm dia 6 mm thick G.I. base plate including holes etc. complete as required.	2	Each				
10.4	DSR 2016 6.4	Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting / sweating and soldering etc. as required.	2	Each				
10.5	DSR 2016 6.7	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or on surface of wall for lightning conductor complete as required.(For horizontal run)	400	Meter				
10.6	DSR 2016 6.8	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or on surface of wall for lightning conductor complete as required. (For vertical run)	500	Meter				
10.7	NSR	Providing and fixing testing joint, made of 20 mm X 3 mm thick G.I. strip, 125 mm long, with 4 nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required.	400	Each				
10.8	DSR 2016 6.12	Providing and fixing testing joint, made of 20 mm X 3 mm thick G.I. strip, 125 mm long, with 4 Nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required.	300	Meter				
10.9	DSR 2016 2.21	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	3	Nos.				
10.10	NSR	Supply and fixing safety instruction chart in word duly framed with 5mm thick glass as required. (approx. Front area 1.20 sq.mt.)	2	Nos.				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
10.11	NSR	Providing First Aid Box as approved by St. John Ambulance Brigade/Indian Red Cross conforming to IS 2217-1963.	2	No.				
10.12	NSR	Providing of rubber mat 1 mtr wide and 2mm thick to with stand 1.1KV dielectric strength as per IS: 15652 - 2006	100	Mtrs.				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
10.13	NSR	Providing of Rubber mat 1000 mm Wide, 2.5 mm thick to withstand 11 KV dielectric strength as per latest IS 15652-2006.	10	Set				
		<b>TOTAL OF EARTHING, LIGHTNING PROTECTION &amp; SAFETY EQUIPMENT SYSTEM CARRIED OVER TO SUMMARY</b>						



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>11.0</b>		<b>UPS SYSTEM (NON SCHEDULE ITEMS)</b>						
11.1	NSR	Supply, installation, testing & commissioning of 40 KVA UPS in paralleling mode at 0.99 input power factor, 0.80 output power factor, UPS efficiency 0.93%, harmonic THDi less than 3%, Remote alarm indication panel, SNMP card as per specification given in the document with following broad features.						
		THD(i) shall be less than 3% in the entire loading range.						
		UPS shall carry design output at 40 deg.						
		Shall have soft start and hold of for incoming supply.						
		Invertor capability to supply 150% load for 5 sec.						
		Three Phase Input and Three Phase Output. (Input - 340V - 470V, Three Phase, 4 wire. / Output - 400-415 Volt, Three Phase, 4 Wire.)						
		Shall not allow deep discharge of the battery and shall not go to 10.5 volts in case of 12 volt cells.						
		Battery shall be external type with rack and suitable for 15 minute backup on 100% load.						
		UPS shall be compatible for minimum 3 nos unit in parallel operation. (Synchronize). Parallel operation kit shall be supplied with UPS.						
		UPS described as above	1	Each				
		<b>TOTAL OF UPS SYSTEM CARRIED OVER TO SUMMARY.</b>						
<b>12.0</b>		<b>DISTRIBUTION PANEL (NON SCHEDULE ITEMS)</b>						
12.1		<b>DISTRIBUTION PANEL-</b>						
		Supply, Installation, Testing & Commissioning of cubicle type totally enclosed free standing type moisture, dust and vermin proof Floor Distribution Panel made out of 2.0 mm thick & front cover 1.6 mm thick CRCA sheet complete with following equipments, including digital AVF Meter, indicating lamps, CT's, internal wiring with suitable size wires / cable, interconnection, painting complete as per specification & drawing. All the incoming and outgoing MCCB shall have 35 KA Ics. All the MCCB up to 250 Amp shall have thermal release with adjustable overload, short circuit & earth fault protection and above shall have microprocessor release with adjustable overload, short circuit & earthfault protection.						
12.1.1	NSR	<b>LIGHT+POWER-1 (GROUND &amp; SECOND FLOOR PANEL)</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		<b><u>INCOMING</u></b>						
		1 No. 200 Amp FP Moulded Case Circuit Breaker.						
		1 No. Digital Multifunction Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						
		<b>BUS BARS</b>						
		250 Amp TPN aluminium busbar with coloured heat shrinkable sleeve.						
		<b>OUTGOING</b>						
		04 No. 3 Phase Digital Energy Meter.						
		29 No. 1 Phase Digital Energy Meter.						
		06 No. 63 Amp / 40 Amp 4P Miniature Circuit Breaker.						
		31 No. 40 Amp DP Miniature Circuit Breaker.						
		Panel described as above	2	Set				
12.1.2	NSR	<b>LIGHT+POWER-1 (FIRST FLOOR PANEL)</b>						
		<b>INCOMING</b>						
		1 No. 400 Amp FP Moulded Case Circuit Breaker.						
		1 No. Digital Multifunction Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						
		<b>BUS BARS</b>						
		250 Amp TPN aluminium busbar with coloured heat shrinkable sleeve.						
		<b>OUTGOING</b>						
		02 No. 3 Phase Digital Energy Meter.						
		33 No. 1 Phase Digital Energy Meter.						
		04 No. 63 Amp / 40 Amp 4P Miniature Circuit Breaker.						
		35 No. 40 Amp DP Miniature Circuit Breaker.						
		Panel described as above	1	Set				
12.1.3	NSR	<b>LIGHT+POWER-1 (THIRD FLOOR PANEL)</b>						
		<b>INCOMING</b>						
		1 No. 630 Amp FP Moulded Case Circuit Breaker.						
		1 No. Digital Multifunction Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		<b>BUS BARS</b>						
		800 Amp TPN aluminium busbar with coloured heat shrinkable sleeve.						
		<b>OUTGOING</b>						
		08 No. 3 Phase Digital Energy Meter.						
		02 No. 1 Phase Digital Energy Meter.						
		06 No. 160 Amp 4P MCCB						
		06 No. 63 Amp / 40 Amp 4P Miniature Circuit Breaker.						
		04 No. 40 Amp DP Miniature Circuit Breaker.						
		Panel described as above	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
12.1.4	NSR	<b><u>UPS PANEL - 1 &amp; 2 -</u></b>						
		<b><u>INCOMING</u></b>						
		1 No. 63 Amp FP Moulded Case Circuit Breaker						
		1 No. Digital Multifunction Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						
		<b><u>BUS BARS</u></b>						
		100 Amp TPN aluminium busbar with coloured heat shrinkable sleeve.						
		<b><u>OUTGOING</u></b>						
		03 No. Single Phase Digital Energy Meter.						
		12 No. 40 Amp DP Miniature Circuit Breaker.						
		Panel described as above	2	Set				
12.1.5	NSR	<b><u>UPS OUTGOING PANEL-</u></b>						
		<b><u>INCOMING</u></b>						
		02 No 125 Amp FP Moulded Case Circuit Breaker						
		02 No. Digital Multifunction Meter.						
		02 Set of phase indicating lamps with Single Pole MCB.						
		02 Set of ON / OFF indicating lamps with Single Pole MCB.						
		<b><u>BUS BARS</u></b>						
		250 Amp TPN tinned copper busbar.						
		<b><u>OUTGOING</u></b>						
		03 Nos 100 Amp FP Moulded Case Circuit Breaker						
		05 Nos 63 Amp FP Moulded Case Circuit Breaker						
		Panel described as above	1	Set				
12.1.6	NSR	<b><u>LIFT PANEL-</u></b>						
		<b><u>INCOMING</u></b>						
		1 No. 160 Amp FP Moulded Case Circuit Breaker						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		1 No. Digital Multifunction Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						
		<b>BUS BARS</b>						
		200 Amp TPN aluminium busbar with coloured heat shrinkable sleeve.						
		<b>OUTGOING</b>						
		06 No. 63 Amp TP+N Moulded Case Circuit Breaker.						
		02 No. 40 Amp TPN Miniature Circuit Breaker.						
		09 No. 25 Amp TPN Miniature Circuit Breaker.						
		Panel described as above	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
12.1.7	NSR	<b>LIFT DB-</b>						
		<b>INCOMING/OUTGOING</b>						
		1 No 63 Amp FP RCBO						
		1 No. 25 Amp DP Miniature Circuit Breaker.						
		Panel described as above	2	Set				
12.2	DSR 2016 2.2	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.						
12.2.1	DSR 2016 2.2.14	125 A, 36kA, FPMCCB	3	Set				
12.3	NSR	<b>EXTERNAL LIGHTING PANEL (OUTDOOR TYPE)</b>						
		Design, Manufacturing, Supply, Receiving, Unloading, Shifting, installation, testing & commissioning of cubicle type totally enclosed free standing type moisture, dust, vermin & weather proof Floor Distribution Panel made out of 2.0 mm thick & front cover 1.6 mm thick CRCA sheet complete with following equipments, including digital ammeter with inbuilt ammeter selector switch, digital voltmeter with inbuilt voltmeter selector switch, indicating lamps, CT's, internal wiring with suitable size wires / cable, MS Angle stand for installation, RCC foundation, interconnection, painting complete as per specification & drawing.						
		<b>INCOMING</b>						
		1 No. 63 Amp TP+N Moulded Case Circuit Breaker.						
		1 No. Digital AVF Meter.						
		1 Set of phase indicating lamps with Single Pole MCB.						
		1 Set of ON / OFF indicating lamps with Single Pole MCB.						
		1 Set 24 Hrs TSQ Timer						
		1 Set 63 Amp, 4P Contactor & A/M switch and ON/OFF Push Button.						
		<b>BUS BARS</b>						
		100 Amp TPN aluminium busbar.						
		<b>OUTGOING</b>						
		08 No. 25 Amp DP MCB.						
		03 No. 40 Amp DP MCB.						
		Panel described as above	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
12.4	NSR	Supply, Installation, Testing & Commissioning of Earthing Junction Box size - 400mm x 300mm x 80mm made out of 16 SWG CRCA sheet with seven tank process & powder coating, earthing link (32mm x 6mm copper strip) front door with glass as complete as required.	1	Set				



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
12.5	NSR	Supply, Installation, Testing & Commissioning of MCB in Sheet Steel enclosure made out of 2 mm thick CRCA sheet suitable for 3 phase 4 wire 50Hz AC system complete with four pole Moulded Case Circuit Breaker (ICS = 10KA) suitable for incoming & outgoing termination including power coating etc. complete as per specification & as required.						
12.2.1	NSR	40 Amp DP MCB	110	Set				
<b>TOTAL OF MAIN L.T. PANEL &amp; DISTRIBUTION PANEL CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>13.0</b>		<b>EXTERNAL LIGHTING (NON SCHEDULE ITEMS)</b>						
13.1	NSR	Supply, Installation, Testing & Commissioning of 4 Mtr High hot dip Galvanized Octagonal Pole with bottom 130mm A/F, top 70 mm A/F made up of 3 mm thick HT plate and 220x220x12 mm base plate and 1000 mm long single arm bracket complete with 4 Nos M20 x 450 mmlong foundation bolts, RCC foundation etc as complete as required.	10	Each				
13.2	NSR	Supply, Installation, Testing & Commissioning of 7 Mtr High hot dip Galvanized Octagonal Pole with bottom 130mm A/F, top 70 mm A/F made up of 3 mm thick HT plate and 220x220x16 mm base plate and 1000 mm long single arm bracket complete with 4 Nos M24 x 700 mm long foundation bolts, RCC foundation etc as complete as required.	20	Each				
<b>TOTAL OF EXTERNAL LIGHTING CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
14.0		<b>SOLAR PHOTOVOLTAIC SYSTEM (NON SCHEDULE ITEMS)</b>						
14.1	DSR and AOR for Solar and photovoltaic power plant	<p>Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic PowerPlant conforming to MNRE specifications as amended, consisting of Mono/Poly Crystalline silicon solarcells, netmetering facility, necessary protections, earthing, mounted on Aluminium / GI structure of suitable strength with following components complete as required:-</p> <p>a) Solar Photovoltaic Module of capacity 330Wp or above, manufactured in India, conforming to IS14286 / IEC61215, IS/IEC61730-Part-1, IS/IEC61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants / systems must be warranted for their output peak watt capacity, which should not be less than 90 % at the end of 10 years and 80 % at the end of 25 years.</p> <p>b) Power Conditioning Unit (PCU) of 350-800VDC Input voltage range and 400VAC, three phase, 4 wire, 50Hz +/- 2.5Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree C. The PCU shall add just the voltage and frequency level to suit the Grid Voltage Frequency.</p> <p>c) Data Monitoring System complete with accessories.</p> <p>d) Fixing of Array junction box &amp; Main junction box with IP65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required.</p> <p>e) Lightning and surge voltage protection.</p> <p>f) Connections &amp; Interconnections by supplying &amp; fixing required size XLPE insulated copper conductor 1.1kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying &amp; fixing of necessary channel / conduit lugs and other accessories etc. as required.</p>	10	KW				
		<b>TOTAL OF EXTERNAL LIGHTING CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
15.0		<b>SUBSTATION &amp; D.G. SET WORK (NON SCHEDULE ITEMS)</b>						
15.1		<b>HT PANEL</b>						
15.1.1	NSR	<b>11KV H.T. METERING PANEL (INDOOR TYPE):</b>						
		Supplying, Installation, Testing & Commissioning of indoor type floor mounted, dust, damp and vermin proof, cubicle HT. Metering Panel made out of 14 gauge CRCA sheet steel complete with 5Amp electronic trivector meter, C.T.'s of 100/5Amp, 0.5 Class, 10VA Burden, and P.T.'s of 11KV/ /3, 110V/ /3, 100 VA conforming to relevant IS Standards and complete as required. H.T. Metering cubicle along with C.T.'s, P.T.'s and trivector meter shall be got tested and approved from local electricity supply authority. The GA drawing shall be got approved by state electricity board authorities before procurement.	1	Set				
15.1.2	NSR	<b>11 KV HT VCB SINGLE BREAKER PANEL BOARD (INDOOR TYPE) (INCOMMING/OUTGOING)</b>						
		Supplying, Installation, Testing & Commissioning of indoor type floor mounted metal clad, 11 KV VCB panel with 3 nos VCBs, totally inclosed & fully interlocked, horizontal drawout, horizontal isolation type breaker as per IS 13118, as amended up to date and additional specifications, having capacities as mentioned below, single break, trip free mechanism, manually charged and manually closing breaker suitable for use on 11 KV, 3 phase, 50 Hz A.C. supply with short circuit fault level of 350 MVA, complete with self contained, fully interlocked, rack in and rack out mechanism, air insulated but encapsulated copper bus bars of 600 Amp capacity, breaker featured with mechanical ON/OFF indicator with hand trip device.						
		Spring release coil, shunt trip coil and auxiliary switch of 4 NO + 4 NC and equipped with following switchgears and accessories i/c connections for 3 x 240 sq.mm. XLPE 11 KV cable (cable entry from bottom), end termination with heat shrinkable jointing material etc. as required. (Note - Cost of end termination not included in this item).						
		a) Incomming - 1 No, 630 Amp, VCB.						
		b) 1 No.- 11 KV / 110 Volt PT class 0.5 accuracy and 100 VA burden with 1 No. voltmeter (0-12 KV), digital type, selector switch for voltmeter and protection MCB for HT Metering up to 12 KV on incommmer.						
		c) 1 No.- (0 - 50 A) dual scale Ammeter, digital type, selector switch for ammeters.						
		d) 1 No - Microprocessor based numericak relay with O/C, E/F and S/C protection.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		e) 1 No - set of dual core dual ratio 3 CTs 50/5A of 15 VA burden and accuracy class 0.5 for metering and class 5P10 for protection.						
		f) 1 No. electronic type digital energy analyser having 30 days memory and parameters of KW, KWH, Power factor, frequency etc. Suitable for BMS compatible with all accessories.						
		g) 1 No. hooter with hooter acceptance and reset push button.						
		h) 1 No - Red, Yellow & Blue for phase indication.						
		i) 1 No - Amber for Trip indication.						
		j) 1 No - Red `ON' Green `OFF' indication.						
		k) 1 No - Spring charge indication.						
		l) 1 No - Auto trip indication.						
		m) 1 No. hooter with hooter acceptance and reset push button.						
		n) 1 No. master trip relay. ( Electromechanical Type )						
		o) 1 No. Trip ckt supervision relay. (Electromechanical Type )						
		H.T. Panel described as above	2	Set				
15.2	NSR	Supplying, Installation, Testing and Commissioning of Cast Resin Dry Type 750 KVA, 11/0.415KV, 3 Phase, 50 Hz, Dyn11 vector group, copper wound, class F insulation associated with winding temperature indicator/controller actuated by means of resistance temperature detector embedded in LV windings, <b>INDOOR TYPE</b> transformer with approximately 5% impedance, tappings for On load operation on HV side in step of +5.0% to -15.0% in step of 2.5%, having cable end boxes on HV side suitable for 3x240 sq.mm XLPE cable of 11 KV grade and 4RX3.5CX300 sq.mm Cable box on LV side with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker for safety tripping, suitably mounted on M.S. channel i/c supplying and grouting of suitable M.S. channel with all accessories and conforming to IS 11171:1985 & as per specification attached complete in all respects as required at site. Transformer Losses shall be as per latest ECBC Code.	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
15.3	NSR	<b>MAIN L.T. PANEL CUM SYNCHRONIZING PANEL -</b>						
		Supplying, Installation, Testing & commissioning of cubicle type Main L.T. Panel panel suitable for 415V, 3 phase, 4 wire, 50 Hz AC supply system fabricated in compartmentalized (preferably) design from CRCA sheet steel of 2 mm thick for frame work and covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 7 tank process for powder coating in approved shade, having 4000 Amp capacity extensible type TPN aluminium alloy bus bars of high conductivity, DMC / SMC bus bar support, with short circuit withstand capacity of 31 MVA for 1 sec, bottom base channel of M.S. Section not less than 100mm x 50mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common G.I. earth bar of size 25mm x 5 mm at the rear with 2 nos earth stud, solid connections from main bus bar to switchgears with required size of Al. bus bars and control wiring with PVC insulated copper conductor S/C cable, cable alleys, cable glands plates in two half, i/c providing following switchgears.						
		Each incoming / outgoing breaker shall have microprocessor release with adjustable over current, short circuit & earth fault protection with instantaneous as mentioned in specification. The Panel will be made as per detailed specifications & drawings forming part of this document. (50 KA).						
		Each Outgoing MCCB shall have thermal magnetic release with adjustable overcurrent, short circuit and earth fault protection up to 250 Amp and above shall have microprocessor release with adjustable overcurrent, short circuit and earth fault protection, front extended lockable handle, pad lockable in off position, shrouding on incomer side, termination shall be suitable for aluminium bus bars / cables and as per specification. (50 KA).						
		<b><u>INCOMING</u></b>						
		1 No. 1250 Amp FP Electrically operated horizontal drawout type Air Circuit Breaker microprocessor based releases for O/C,S/C & earth fault protection with instantaneous. (For Incommer) (50 KA)						
		<b><u>BUSCOUPLER</u></b>						
		1 No 1000Amp FP Electrically operated horizontal drawout type Air Circuit Breaker as buscoupler with interlocking arrangement with incomers. (50 KA).						
		1 Sets of indicating lamps for ON & OFF of bus coupler.						
		<b><u>BUSBARS</u></b>						
		1600 Amp TPN busbars of aluminium alloy as per SLD.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		<b><u>AUTO OPERATION OF INCOMER / BUSCOUPLER ACB's.</u></b>						
		Micro PLC shall be provided to achieve the Changeover, Interlocking and following functions.						
		Changeover of Incommer and Bus coupler.						
		Interlocking.						
		Necessary hardware shall be provided to achieve above functions including micro PLC with real time clock, digital inputs/outputs, MMI with 2 line display, power supply, auxillary relays, PB's indication etc. & software for the above.						
		Automatic system shall be user friendly and shall have manual override.						
		<b>1 No. 800A &amp; 1 No. 630A feeder incomer and Each incomer breaker feeder shall have following: (For 500 KVA &amp; 320 KVA D.G. Set)-</b>						
		One set of Generator control relay for Each D.G. Set with accessories for AMF, Load Management, Synchronizing and Interlocking through micro PLC. (Make of relay - Woodward / Dief).						
		One number incomer 4P 800 amps EDO breaker. Each breaker shall have microprocessor based releases for O/C,S/C & earth fault protection with instantaneous.						
		One number incomer 4P 630 amps EDO breaker. Each breaker shall have microprocessor based releases for O/C,S/C & earth fault protection with instantaneous.						
		3 No. indicating lamps to show the incoming power along with HRC fuses.						
		1 No. digital ammeter, ammeter selector switch, digital voltmeter, Voltmeter selector switch.						
		1 No. Load Manager EM 6400 with RS 485 port						
		1 no. REF relay						
		Annunciation window to cover LLOP, HWT, OIL Pressure, U/V, O/V, U/F, O/F, O/C, E/F, REF relay faults shall be provided. 2 nos phase reversal relay shall be provided.						
		Engine should trip on LLOP, HWT, oil temp, O/V, O/F and breaker should trip on other faults.						
		Initially U/V & U/F will be bye passed till oil pressure is picked up.						
		Indicating lights for ACB ON / OFF, ACB trip, neutral contactor ON, D.G. on mains, D.G. fails to start.						
		Generator start /stop facility through push button from panel, necessary cranking relay shall be provided.						
		Suitable battery charger for 24V 360 AH with d.c voltmeter & d.c ammeter. D.C voltmeter and ammeter will be analouge type.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		Whenever D.G. stop through PB, load shall be disconnected first.						



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		<b>OUTGOING</b>						
		<b><u>EACH OUTGOING FEEDER SHALL HAVE DUAL SOURCE DIGITAL KWH METER.</u></b>						
		02 Nos 630A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		02 Nos 400A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		04 Nos 250A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		06 Nos 160A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		04 Nos 125A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		04 Nos 100A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		06 Nos 63A TP+N Moulded Case Circuit Breaker with ON /OFF indication.						
		<b>INSTRUMENTS</b>						
		1 Nos. 0 to 500 Volt digital voltmeter with Voltmeter Selector Switch & Protective SP MCB (96mm square) (one for each Incoming Breaker).						
		1 No. 0 to 1000 Amp digital ammeter (96mm square) with CT's.						
		1 Sets of phase indicating lights (RYB) with protection fuses (one set for each incoming breaker).						
		1 Sets breaker 'ON' & 'OFF' indicating lamp (one set for each incoming breaker).						
		1 Sets trip circuit healthy indicating lamp (one set for each incoming breaker).						
		1 Sets auto trip indicating lamp (one set for each incoming breaker).						
		1 Set of CT's one of 1000/ 5Amp ratio for APFC relay.						
		1 Nos. Frequency meter (one for each Incoming Breaker).						
		1 Nos. master trip relay (one for each Incoming Breaker).						
		1 Nos. 3 phase, over voltage & under voltage relay.						
		1 Nos. 3 phase, phase reversal relay with single phasing preventor.						
		1 Nos. 12 window annunciator with hooter, accept & reset push button.						
		1 Nos. electronic type digital energy analyser having 30 days memory and parameters of KW, KWH, Power factor, frequency etc. Suitable for BMS compatible with all accessories.						
		<b><u>BATTERY &amp; BATTERY CHARGER</u></b>						
		1 No. 24V, 72AH SMF Battery with suitable battery charger for control supply & suitable rating of UPS with 2 hour backup.						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		<b>250 KVAR CAPACITOR - 02 SET (EACH SET SHALL HAVE FOLLOWING) (SHALL BE PART OF MAIN L.T. PANEL)</b>						
		<b><u>INCOMING</u></b>						
		1 Nos 500 Amp FP Moulded Case Circuit Breaker. <b>(Already considered in Main L.T. Panel)</b>						
		1 Nos. 0 to 500 Volt digital voltmeter with Voltmeter Selector Switch & Protective SP MCB (96mm square).						
		1 No. 0 to 500 Amp digital ammeter (96mm square) with CT's)						
		1 Sets of phase indicating lights (RYB) with protection fuses.						
		1 Sets breaker 'ON' & 'OFF' indicating lamp.						
		Active Filter shall have sensing system of PF and harmonics and issue the on/off command to each capacitor bank automatically as per set value of PF & Harmonics.						
		<b><u>BUSBARS</u></b>						
		500 Amp TPN busbars of aluminium alloy as per SLD.						
		<b><u>OUTGOING</u></b>						
		2 Nos. 125 Amp TP MCCB.						
		5 Nos. 63 Amp TP MCCB.						
		3 Nos. 32 Amp TP MCCB.						
		2 Nos. capacitor duty contactor (one for each 50KVAR capacitor unit).						
		5 Nos. capacitor duty contactor (one for each 25KVAR capacitor unit).						
		3 Nos. capacitor duty contactor (one for each 10KVAR / 5KVAR capacitor unit).						
		2 Nos. 50 KVAR Capacitor Bank 440 Volt.						
		5 Nos. 25 KVAR Capacitor Bank 440 Volt.						
		3 Nos. 10/5KVAR Capacitor Bank 440 Volt.						
		10 Sets of push button stations Red and Green for manual operation of capacitor units with auto/manual selector switches.						
		1 Set Indicating lamp for each capacitor unit to indicate that the unit is 'ON'.						
		1 No. Toggle switch for changing automatic to manual operation of capacitor units.						
		Main L.T. Panel Describe as above.	1	Set				
15.4		<b>11 KV END TERMINATION:</b>						
15.4.1	DSR 2016 Item No. 10.1	Supplying and making indoor cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
	DSR 2016 Item No. 10.1.3	240 sq. mm	4	Set				
15.4.2	DSR 2016 Item No. 10.2	Supplying and making outdoor cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :						
	DSR 2016 Item No. 10.2.3	240 sq. mm	2	Set				
15.5	NSR	<b>11 KV H.T. CABLE:</b>						
		Supplying & Laying of 11 KV grade aluminium conductor, cross linked polyethylene (XLPE) insulated individual core screened, flat steel/strip armoured PVC sheathed cable complete as required.						
15.5.1		3C x 240 Sqmm, 11 KV XLPE	200	Meter				
15.6	NSR	<b>D.G. SET WORK-</b>						
15.6.1		Providing, installation testing & commissioning of ' <b>Silent Type</b> ' Diesel Generating Set along with having prime power rating <b>500 KVA</b> , 415 Volts at 1500RPM, 0.8 lagging Factor at 415 V suitable for 50 Hz, 3 phase system and for 0.85 load factor and consisting of the following:-						
a)		<b>Diesel Engine</b>						
		Diesel Engine 4 stroke radiator cooled, electric start, of suitable BHP at 1500 RPM suitable for above output of alternator at 40 <sup>0</sup> C, 50% RH & at 1000 metre MSL and confirming to BS 5514, BS 649, is 10000, capable of taking 10% overloading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.						
b)		<b>Engine Mounted Instrument Panel fitted with and having digital display for following:</b>						
(i)		Start- stop switch with key.						
(ii)		Water Temperature indication						
(iii)		Lubrication Oil pressure indication						
(v)		Battery charging indication						
(vi)		RPM indication						
(vii)		Over Speed trip Indication						
(viii)		Low lubrication oil trip indication						
(ix)		Engine Hours Indication						
c)		<b>Alternator:</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
		Synchronous alternator rated at 500 KVA, 415 Volts at 1500 RPM, 3 phase 50 Hz, AC Supply with 0.8 lagging power factor at 40 <sup>0</sup> C, 50% RH & at 1000 metre MSL. The alternator shall be having SPDB enclosure, brushless, continuous duty, self-excited and self-regulated through AVR confirming to IS:4722/ BS 2613 suitable for tropical conditions and with class- F insulation. Alternator shall have end termination cable box on alternator to terminate the 3 Run x 3C x 300 sq.mm cables.						
d)		<b>Base Frame &amp; Foundation</b>						
		Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
e)		<b>Fuel Tank:</b>						
		Daily service fuel tank of 990 litres capacity, fabricated out of 3mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C pipes of suitable dia. Complete with valves level indication & accessories as required as per specifications.						
f)		<b>Exhaust System :</b>						
		Dry exhaust manifold with hospital grade exhaust silencer.						
g)		<b>Starting System:</b>						
		24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with 2 Nos. of batteries (25 plates, 160 AH lead Acid type) as required as per specifications.						
h)		Accoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air into the atmosphere as per specifications.						
	NSR	Diesel Generating Set 500 KVA. described as above.	1	Set				
15.6.2		Providing, installation testing & commissioning of ' <b>Silent Type</b> ' Diesel Generating Set along with having prime power rating <b>320 KVA</b> , 415 Volts at 1500RPM, 0.8 lagging Factor at 415 V suitable for 50 Hz, 3 phase system and for 0.85 load factor and consisting of the following:-						
a)		<b>Diesel Engine</b>						
		Diesel Engine 4 stroke radiator cooled, electric start, of suitable BHP at 1500 RPM suitable for above output of alternator at 40 <sup>0</sup> C, 50% RH & at 1000 metre MSL and confirming to BS 5514, BS 649, is 10000, capable of taking 10% overloading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories.						
b)		<b>Engine Mounted Instrument Panel fitted with and having digital display for following:</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
(i)		Start- stop switch with key.						
(ii)		Water Temperature indication						
(iii)		Lubrication Oil pressure indication						
(v)		Battery charging indication						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
(vi)		RPM indication						
(vii)		Over Speed trip Indication						
(viii)		Low lubrication oil trip indication						
(ix)		Engine Hours Indication						
c)		<b>Alternator:</b>						
		Synchronous alternator rated at 320 KVA, 415 Volts at 1500 RPM, 3 phase 50 Hz, AC Supply with 0.8 lagging power factor at 40°C, 50% RH & at 1000 metre MSL. The alternator shall be having SPDB enclosure, brushless, continuous duty, self-excited and self-regulated through AVR confirming to IS:4722/ BS 2613 suitable for tropical conditions and with class- F insulation. Alternator shall have end termination cable box on alternator to terminate the 2 Run x 3C x 300 sq.mm cables.						
d)		<b>Base Frame &amp; Foundation</b>						
		Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
e)		<b>Fuel Tank:</b>						
		Daily service fuel tank of 990 litres capacity, fabricated out of 3mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C pipes of suitable dia. Complete with valves level indication & accessories as required as per specifications.						
f)		<b>Exhaust System :</b>						
		Dry exhaust manifold with hospital grade exhaust silencer.						
g)		<b>Starting System:</b>						
		24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with 2 Nos. of batteries (25 plates, 160 AH lead Acid type) as required as per specifications.						
h)		Accoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air into the atmosphere as per specifications.						
	NSR	Diesel Generating Set 320 KVA. described as above.	1	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
15.7	NSR	Supplying & Fixing exhaust gas piping of suitable dia welded black MS, 6.0 mm thick, 300 mm dia pipe confirming to IS:3589 cut to required lengths and installed with necessary bends, supports and clamps, anti-vibration mountings, insulation of exhaust system with mineral wool / rockwool 75 mm thick wiremess & 26 gauge aluminium cladding, supports etc., as required as per specifications & as per latest CPCB requirement.	60	Meter				
15.8	NSR	Supplying & Fixing exhaust gas piping of suitable dia welded black MS, 6.0 mm thick 250 mm dia pipe confirming to IS:3589 cut to required lengths and installed with necessary bends, supports and clamps, anti-vibration mountings, insulation of exhaust system with mineral wool / rockwool 75 mm thick wiremess & 26 gauge aluminium cladding, supports etc., as required as per specifications & as per latest CPCB requirement.	40	Meter				
15.9	NSR	Supplying & Fixing exhaust gas piping of suitable dia welded black MS, 6.0 mm thick 200 mm dia pipe confirming to IS:3589 cut to required lengths and installed with necessary bends, supports and clamps, anti-vibration mountings, insulation of exhaust system with mineral wool / rockwool 75 mm thick wiremess & 26 gauge aluminium cladding, supports etc., as required as per specifications & as per latest CPCB requirement.	60	Meter				
15.10		<b>INSPECTION CHAMBER:</b>						
		Constructing brick masonry chamber for underground C.I. inspection chamber and bends with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design :						
		Inside dimensions 600x 850 mm and 45 cm deep for pipe line with three or more inlets.						
15.10.1	NSR	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	14	Each				
		Extra for depth beyond 45 cm of brick masonry chamber						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
15.11	DSR 2016 14.16	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc..direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.						
15.11.1	DSR 2016 14.16.4	160 mm dia (OD-160 mm & ID-135 mm nominal)	300	Meter				
15.11.2	DSR 2016 14.16.5	200 mm dia (OD-200 mm & ID-175 mm nominal)	250	Meter				
		<b>TOTAL OF SUBSTATION &amp; D.G. SET WORK CARRIED OVER TO SUMMARY</b>						



S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>16.0</b>		<b>DATA, TELEPHONE &amp; TV SYSTEM WIRING (NON SCHEDULE ITEMS)</b>						
16.1	DSR 2016 1.24	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.						
16.1.1	DSR 2016 1.24.6	Telephone socket outlet	110	Nos				
16.1.2	DSR 2016 1.24.7	TV antenna socket outlet	110	Nos				
16.2	DSR 2016 1.19	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	2100	Meter				
16.3	DSR 2016 1.53.1	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required. 1 run of cable	11000	Meter				
16.4	NSR	Supply, erection, testing and commissioning of following sizes of splitter of aluminium die cast body in suitable size of G.I. Box.						
16.4.1	NSR	8 way	10	Each				
16.5	DSR 2016 1.27	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.						
16.5.1	DSR 2016 1.27.1	1 or 2 Module (75mmX75mm)	110	Each				
16.6	DSR 2016 1.18	Supplying and drawing following pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.						
16.6.1	DSR 2016 1.18.2	2 Pair	6000	Each				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
16.7	NSR	Supply, Installation, Testing & Commissioning of the Cat 6 information outlet that should confirm or exceed component specifications TIA/EIA-568-B.2-1 standards for physical & electrical Specifications, should be fully unshielded type and should have the tool less mechanism with inbuilt crimping tool and it should be Third Party certified and tested. (RJ-45).	110	Set				
		<b>TOTAL OF DATA, TELEPHONE &amp; TV SYSTEM WIRING WORK CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>17.0</b>		<b>CCTV SYSTEM (NON SCHEDULE ITEMS)</b>						
17.1	NSR	Supply, installation, testing and commissioning of 2 MP-Full HD 1920x1080-IP camera indoor dome type with varifocal lens (3.3 - 10) mm, H 264, POE DC 12 V / AC 24V ONVIF and auto iris POE cameras, micro SD/SDHC Card, Two Way Audio, Alarm In & Out, Day & Night (ICR), IR LED - 20 meters, ONVIF compliant, privacy masking , Video Motion Detection, Active Tampering Alarm, Trip Zone, including integrated housing Connectors, A.I.Lens, Camera Mounts, Power Supply and all Ancillary Equipment & all accessories.	50	Set				
17.2	NSR	Supply, installation, testing & commissioning of vandal proof , outdoor IP 66 , 2 MP - Full HD 1920x1080 , AF optical zoom lens (f=4.3 - 129.0mm), 30 x optical & 12 X digital day night PTZ cameras, micro SD/SDHC , Two Way Audio , Alarm In & Out, built in heater, True WDR - 120 dB, ONVIF Compliant, Motion Detection, Face Detection, Alarm in, Tampering, with pole mounted of suitable height including integrated housing, connectors, lens, camera mounts, power supply including all ancillary equipments and accessories including remote breaker unit & pan tilt unit.	10	Set				
17.3	NSR	Supply, Installation, Testing & Commissioning of 16 IP Channel-260 Mbps incoming through put Network Video Recorder alongwith POE switches if required completing in all respect with embeded linux operating system , in built SATA , external e SATA ports to support required Data Storage of 30 days (Frame rate 30ips@1920x1080) with RAID level up to 1 supported, minimum of 4 Channel Full HD playback, should be compatible with third party cameras and ONVIF compliant, HDMI & VGA output, 1920 x 1200 , 1920 x 1080, 1680 x 1050, 1600 x 1200 Display resolution range and speed up to 480 ips, recording mode should be time-lapse, event, pre-event, panic etc., should suport client connection of Gigabit Ethernet x1, Gigabit Ethernet (Video In) x16, AC 100-240 V operable, FCC,UL, CE certification.	4	Set				
17.4	NSR	Supply, Installation, Testing & Commissioning of 42" LED panels for video wall including supply of Hardware, Drivers, Software, all installation material and fixtures etc as complete as required.	5	Set				
17.5	NSR	Supply, Installation, Testing & Commissioning of 6 Core, Multi Mode Fibre , Lazr Speed 300 as complete as required.	50	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
17.6	NSR	Supply, Installation, Testing & Commissioning of MM Pigtail, 3 Feet as complete as required.	10	Set				

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
17.7	NSR	Supply, Installation, Testing & Commissioning of 12 port multimode loaded LIU as complete as required.	10	Set				
17.8	NSR	Supply, Installation, Testing & Commissioning of LC-SC, MM Patch Cord, 10 Feet 50/125.	10	Set				
17.9	NSR	Supply, Installation, Testing & Commissioning of 42U Rack including all accessories as complete as required.	1	Set				
17.10	NSR	Supply, Installation, Testing & Commissioning of 12U Rack including all accessories as complete as required.	5	Set				
17.11	NSR	Supply, Installation, Testing & Commissioning of 16 channel SFP to Ethernet Converter along with Layer 2 switch as complete as required.	1	Set				
17.12	NSR	Supply, Installation, Testing & Commissioning of the Cat 6 information outlet that should confirm or exceed component specifications TIA/EIA-568-B.2-1 standards for physical & electrical Specifications, should be fully unshielded type and should have the tool less mechanism with inbuilt crimping tool and it should be Third Party certified and tested including G.I. Box & Modular cover plate. (RJ-45).	12	Set				
17.13	NSR	Supply, Installation, Testing & Commissioning of CAT-6 Patch Cord, 3 Feet as complete as required.	12	Set				
17.14	NSR	Supply, Installation, Testing & Commissioning of CAT-6 Patch Cord, 7 Feet as complete as required.	12	Set				
17.15	NSR	Supply, Installation, Testing & Commissioning of 24 port patch panel as complete as required.	1	Set				
17.16	NSR	Supply, Installation, Testing & Commissioning of U chaneel as complete as required.	2	Set				
17.17	NSR	Supply ,Installation, Testing & Commissioning of Server Grade Machine with Minimum 3 Ghz Processor, 8GB RAM, 1 TB Hard disk along with necessary Video Management software & multiplexer as required.	1	Set				
<b>TOTAL OF CCTV SYSTEM CARRIED OVER TO SUMMARY</b>								

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>18.0</b>		<b>ACCESS CONTROL SYSTEM (NON SCHEDULE ITEMS)</b>						
18.1	NSR	Supply, Installation, Testing & Commissioning of Motor power supply- 24V, Max. motor current- 12A, Motor power- 350 W, Max. torque- 750 nm, Max. boom length- 6250mm Max opening- 100deg, Max opening- 6 sec, Protection level- IP54, Weight- 50 kg as complete as required.	2	Nos				
18.2	NSR	Supply, Installation, Testing, Commissioning of microprocessor based control panel having LED indicators and audio buzzer, with 125khz high security format 2 door controller suitable for 4 readers including management software. (The controller shall be compatible for hardware integration with fire alarm panel.)	10	Set				
18.3	NSR	Supply, Installation, Testing, Commissioning of 3"-4" read range proximity reader having LED indicators,with 125khz high security format.power requirements 5-16V DC.	20	Nos				
18.4	NSR	Supply of an Emergency Key.	1	Nos				
18.5	NSR	Supply, Installation, Testing, Commissioning of 600Lbs suitable for Single Leaf Door Electromagnetic Lock with magnetic contacts.	20	Nos				
18.6	NSR	Supply, Installation, Testing, Commissioning of proximity card with 125 khz high security format . (HID Make.)	100	Nos				
18.7	NSR	Supply, Laying of 0.75X 8 mm Multistand shielded copper tinned cable in an existing surface / recessed conduit as required.	800	Mtr				
18.8	NSR	Supply, Installation, Testing, Commissioning of Exit Push Button	20	Nos				
		<b>TOTAL OF ACCESS CONTROL SYSTEM CARRIED OVER TO SUMMARY</b>						

S. No.	MPWDSOR	DESCRIPTION OF ITEM	QTY	UNIT	RATE (Rupees in figures)	RATE (Rupees in words)	AMOUNT (Rupees in figures)	AMOUNT (Rupees in words)
<b>19.0</b>		<b>LIFT SYSTEM (NON SCHEDULE ITEMS)</b>						
19.1	NSR	Supplying, installation, testing & commissioning of 13 Passenger (680 KG) MRL Gearless lifts having contract speed of 1.0 MPS serving different floors in the lift shaft as per detailed specifications enclosed and as under:-						
i)		Speed --> 1.0 MPS or more						
ii)		Floors --> S+G+4						
iii)		Travel --> 20.5 Mtrs. Approx						
iv)		Stops & opening - --> 4 & 900 mm WideX 2400mm High.						
v)		Controller: A.C. variable voltage & variable frequency						
vi)		Automatic rescue device complete with dry maintenance free batteries as required.						
vii)		Operation : Microprocessor based single automatic push button/ Duplex selective collective with / without attendant.						
viii)		Power-415 V, 3 phase, 50 Hz, 4 wires system.						
ix)		Type of doors						
		(a) CAR wall finish-Laminate Vancouver Wood & CAR door finish-SS Mirror Finish.						
		(b) Landing doors : SS Leather Finish						
		(c) Ceiling : SS Mirror Finish with LED Dash Lighting & Floor - Artificial Granite in Brown Colour.						
x)		Hand rail not less than 600mm long at 900mm above floor level to be fixed on all the three sides adjacent to control panel in the lift car.						
xi)		CAR operating panel - Digital Touch Panel/Push Button						
xii)		On each Landing outside the lift, a steel plate with illumination sign shall be provided with written on it:-						
		a) DO NOT USE LIFT IN CASE OF FIRE						
xiv)		Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.	3	Each				
<b>20.0</b>		<b>ESCALATOR SYSTEM (NON SCHEDULE ITEMS)</b>						
		Supplying, installation, testing & commissioning of Escalators, speed 0.5 mps, height as per sketch enclosed, 30 degree inclination with step & 2 step flat at each landing, width of 1000 mm, balustrades panel of SS and complete as required and as per technical specification and drawing enclosed. (For Height upto 4000mm).	10	Each				

**PROPOSED CONSTRUCTION OF POLO MARKET, SHILLONG, MEGHALAYA**

**BILL OF QUANTITY FIRE FIGHTING WORKS**

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>1.0</b>		<b>FIRE FIGHTING SYSTEM (NON SCHEDULE ITEM)</b>						
1.1		Providing and fixing mild steel pipes conforming to I.S.1239 (Heavy class) including all fittings like anchor fastners, couplings, bends, elbows, tees, flanges etc. welding as required, application of anti-corrosive treatment to buried pipes by 4 mm thick multi layer PYPKOTE membrane applied over a coat of primer as per manufacture's recommendations, including necessary trenching, refilling etc. complete.						
1.1.1	NSR	80 mm dia	Metre	20				
1.1.2	NSR	150 mm dia	Metre	50				
1.2		Providing, laying, jointing, testing and commissioning of following sizes of MS Heavy Duty pipes conforming to IS: 1239 with all accessories like all fittings (standard GI/MS fitting with welded/Screwed joint shall be used on the pipes as per local bye laws) including tees, elbows, reducers, union, flanges, rubber gaskets, GI nuts bolts, washer including supporting/fixing the pipe on floor / wall /ceiling with clamps, hangers (using anchor fasteners) or angle iron, G.I. pipe sleeve of suitable higher size shall be provided wherever the pipes are crossing the walls/floors and sealing the sleeves with glass wool in between & fire sealent compound at either end all as per Engineer in charge. / Consultants requirements including cutting holes and chases in brick and making good the same to original conditions complete in all respects.						
		All hangers, clamps, brackets etc. shall be of galvanized iron unless specified otherwire and then supply of the same shall also be included for rates under this head. Including two coats of synthetic enamel paint of approved shade over a coat of primer. Prior to application of primer the surface should be cleaned for any dirt, rusts, rough substance etc. Including painting of legends both direction arrow as per the approval of the Engineer in charge.						
1.2.1	NSR	25 mm dia IS: 1239	Metre	4050				
1.2.2	NSR	32 mm dia IS: 1239	Metre	590				
1.2.3	NSR	40 mm dia IS: 1239	Metre	325				
1.2.4	NSR	50 mm dia IS: 1239	Metre	400				
1.2.5	NSR	65 mm dia IS: 1239	Metre	300				
1.2.6	NSR	80 mm dia IS: 1239	Metre	415				
1.2.7	NSR	100 mm dia IS: 1239	Metre	325				
1.2.8	NSR	150 mm dia IS: 1239	Metre	600				
1.3		Providing & fixing <b>SS fire hydrant single landing valve</b> with 80 mm NB flanged inlet ( Table-E Flange) , SS spindle controlled 63 mm dia female instantaneous outlet type. SS coupling, blank cap, chain, twist release type lug & all accessories Conforming to IS standards. Including flanged tapping from wet rise complete as required.						
1.3.1	NSR	Single Landing Valve (For Internal & External Hydrants)	Each	26				
1.4	NSR	Providing and fixing first aid fire hose reel wall mounting swinging type fitted with 20 mm dia 36.5 m long high pressure ( 10 Kg/cm <sup>2</sup> ) themo plastic hose tube conforming to IS: 12585 Type II with 5 mm outlet stainless steel nozzle with shut off valve (I.S. 884-1969).	Each	24				
1.5	NSR	Providing and fixing of Non-percolating flexible hose (RRL type-'A' with EPDM Lined) ISI marked (IS:636) 63 mm dia x 15 M long complete with instantaneous type stainless steel 63 mm dia. IS marked Male and female couplings (IS:903) bound and rivetted to hose pipe with copper rivets and 1.5 mm copper wire.	Each	44				
1.6	NSR	Providing and fixing of 63 mm dia, 15 mtr long CP hose pipe ISI Marked ( IS:8423 ) with instantaneous type stainless steel 63 mm dia. IS marked Male and female couplings (IS:903) bound and rivetted to hose pipe with copper rivets and 1.5 mm copper wire.	Each	8				
1.7	NSR	Providing and fixing standard short size stainless steel branch pipe with gunmetal nozzle 16 mm dia outlet with standard instantaneous type 63 mm dia coupling.(IS:903)	Each	26				



S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.8		Providing and fixing of gun metal Fire Brigade connection (Suction collecting head) consisting of 63 mm dia instantaneous type male coupling with built-in check valves and 150 mm dia.flanged outlet complete with bolts, nuts and rubber insertions as required as per IS:904-1983. (One for fire tank, One for sprinkler riser & One for wet riser connections)						
1.8.1	NSR	Four way	Each	1				
1.9	NSR	Providing and fixing of gun metal fire Brigade Suction Hose coupling (Draw-out Connection) with nut for female coupling as per IS:902- 1974 complete with 100 mm dia. G.I. Suction pipe and 100 mm dia. 1No. C.I. Foot valve flanged (to be connected to static water tank).	Each	1				
1.10	NSR	Providing and fixing of Air cushion tank (air-vessel) 250 mm dia. x 1.0 M high with dished top made of minimum 6 mm thick M.S. pipe/plate complete with 25 mm dia brass Air Valve (Ball valve, pressure guage type), 25 mm dia. Stop with brass stop cock, nipple, tees, elbow and all accessories as required including fixing brackets.	Each	4				
1.11		Providing and fixing forged brass ball valve suitable for test pressure of not less than 15 kg / sq.cm.						
1.11.1	NSR	25 mm dia.	Each	18				
1.11.2	NSR	32 mm dia	Each	10				
1.11.3	NSR	40 mm dia	Each	54				
1.11.4	NSR	50 mm dia	Each	50				
1.12	NSR	Providing and fixing of Weather proof hose cabinets fabricated from 14 g M.S. Sheet with full glass door and mortise locking arrangement , suitable to accommodate one Hydrant landing valve, 2 nos. 15 M long hose and 1 No branch pipe. The cabinet shall be painted with one coat of primer and finished stove enamelled "Fire Red", "Fire Hose" written on front including suitably mounted on a raised masonry platform as required. (Approx 0.75mx0.6 m x 0.25 m).	Each	4				
1.13	NSR	Providing and fixing MS partly glazed single/double hung lockable shutter fabricated from MS section as required with 5 mm thick glass for fire station complete including stove enamelled painting of door and frame and words "Fire Hydrant" written on glass, suitable to accommodate 2 Hydrant landing valves, 1 fire hose reel, 2 nos.15m long 63 mm dia hose,1-branch pipe, 1no. fire man's axe, fire extiguishers 2 nos, including suitably mounted on a raised masonry platform as required. (Approx.size 0.90 m x 2.1m )	Each	24				
1.14	NSR	Providing and fixing dial type pressure gauge with isolation cock and pipe at hydrant station. Dial diameter 100 mm caliberation, 0-15 kg	Each	24				
1.15		Providing & fixing butterfly valve tested to a pressure not less than 15 Kg/Sq.cm. Including rubber gasket, 2 nos. table-E flanges, nuts, bolts, washers & painting complete as required.						
1.15.1	NSR	80 mm dia	Each	30				
1.15.2	NSR	100 mm dia	Each	8				
1.15.3	NSR	150 mm dia	Each	10				
1.16		Providing & fixing dual plate CI wafer type check valve tested to a pressure of 15 Kg/sqcm. Including rubber gasket, 2 nos. table-E flanges, union, nuts, bolts, washers & painting complete as required.						
1.16.1	NSR	80 mm dia	Each	1				
1.16.2	NSR	100 mm dia	Each	2				
1.16.3	NSR	150 mm dia	Each	3				
1.17		Providing and fixing 15 mm dia gunmetal sprinkler head with quartz bulb and set to operate at specified temperature.						
		Temperature of operation 68 deg. C.						
1.17.1	NSR	Pendent/Upright type	Each	1200				
1.17.2	NSR	Side wall type ( Normal Throw)	Each	18				
1.17.3	NSR	Semi concealed type with two piece adjustable rosette plate.	Each	435				

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.18		Providing and fixing installation valve with turbine type automatic alarm to be connected with control valve drain and test valve as per manufacturer's design.						
1.18.1	NSR	150 mm dia.	Each	2				
1.19	NSR	Providing and fixing 25 mm dia inspecting & testing assembly with built in bye pass arrangement and connection to drain line. <b>Make-Giocomini.</b>	Each	10				
1.20	NSR	Providing and fixing electrically operated flow indicating switches System Sensor in sprinkler branch line on each floor with necessary junction box installed in accessible place. (Wiring from switches to panel not included)	Each	10				
1.21		Providing and fixing of copper conductor PVC covered control cables from individual flow switches on each floor to annunciation panel installed in fire control room including sleeves, cable clips, supports for horizontal runs making connection to each switch complete.						
1.21.1	NSR	2 core 1.5 Sqmm	Metre	100				
1.22		Providing and fixing flexible Sprinkler Hose Corrugated braided Type for fire Sprinklers, with 1" Inlet Nipple BSPT, 1/2" Outlet Reducer BSPT, 0.7 m Square Support Bar & Brackets						
1.22.1	NSR	700 mm length flexible pipe	Each	100				
1.22.2	NSR	1000 mm length flexible pipe	Each	150				
1.23	a.	Horizontal multi stage, split casing <b>pump</b> , suitable for operation on 415 volts $\pm$ 6%, 3 phase, 50 HZ AC supply. The installation shall be complete with flexible coupling and coupling guard as required. Fire pump shall have CI casing, CS diffusers, bronze impeller (hard finished and dynamically balanced) and SS (304) shaft with mechanical seal, capable for head as required to ensure a minimum pressure of 3.5 Kg/Sqcm at the farthest or top most hydrant / sprinkler. The installation shall be complete with necessary pressure gauge on delivery side.						
	b	Squirrel cage induction motor, TEFC type suitable for operation on 415 volts, 3 phase 50 HZ A.C supply, for the above pump with synchronous speed of <b>1450 RPM</b> , conforming to IP 55 protection & class B insulation. The motor shall conform to IS 325-1978 (up to date).						
	c	Common base frame for (a) and (b) from M.S. Channel for required size.						
	d	Suitable RCC / cement concrete foundation with plaster and MS angle epoxy coated edging (design and drawing to be provided by the Contractor. Complete with anti-vibration arrangement of cushy foot mountings.						
1.23.1	NSR	<b>Main Electric Motor Driven Pumps</b>						
		Capacity- 2280 LPM						
		Head- 75 M.						
		HP- 75 HP ( Approximate)	Each	1				
1.24		Supply, installation, testing and commissioning of <b>jockey pump</b> (pressurisation pump) comprising of the following:						
	a.	Vertical centrifugal multi stage pump, suitable for operation on 415 volts $\pm$ 6%, 3 phase, 50 HZ A.C supply. The installation shall be complete with Flexible coupling and coupling guard, complete as required.						
	b.	The pump casing shall be CI, shaft shall be SS & impeller/ shaft sleeve/casing wearing ring shall be bronze. The pump shall be provided with mechanical seal The system shall be complete with necessary pressure gauge with gun metal shut off cock on delivery side.						
	c.	Squirrel cage induction motor TEFC type for operation on 415 V, 3 phase 50 Hz AC supply for the above pump with a synchronous speed of <b>2900 RPM</b> as required.						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
	d.	Common base plate for (a) and (b) from M.S. channel as required size.						
	e.	Suitable RCC / cement concrete foundation with plaster and MS angle epoxy coated edging (design and drawing to be provided by the Contractor. Complete with anti-vibration arrangement of cushy foot mountings.						
1.24.1	NSR	Flow : 180 LPM, Head : 75 mts	Each	1				
1.25		Supply, installation, testing and commissioning of <b>Diesel Engine driven</b> fire pump suitable for automatic operation comprising of the following and conforming to BS 649/IS 10002 all amended upto date.						
	a.	Horizontal multi stage, split casing centrifugal pump, suitable for diesel engine operation . The installation shall be complete with flexible coupling and coupling guard as required. Fire pump shall have CI casing, CS diffusers, bronze impeller (hard finished and dynamically balanced) and SS (304) shaft with mechanical seal, pump shall ensure a minimum pressure of 3.5 Kg/Sqcm at the farthest or topmost hydrant / sprinkler. The installation shall be complete with necessary pressure gauge on delivery side.						
	b.	Heat exchanger cooled (secondary cooling) diesel engine of speed <b>1500 RPM</b> suitable for the above pump with automatic starting mechanism and other accessories including fuel tank (fabricated from 6mm MS sheet, painted with two coats of synthetic enamel paint over a coat of primer) of capacity adequate to sustain pump operation for 8 hours continuous working. The tank shall be fitted with Magnetic oil level indicator, MH with cover, drain valve, air vent including structural supports (painted with approved shade), 2 Nos. x 12 volt battery (alternator of engine and panel is suitable for 12 volt current rating) with stand heat exchanger with necessary piping connections & fittings complete as required.						
	c.	Common base frame for (a) and (b) from M.S. Channel for required size.						
	d.	Suitable RCC / cement concrete foundation with plaster and MS angle epoxy coated edging (design and drawing to be provided by the Contractor. Complete with anti-vibration arrangement of cushy foot mountings.						
1.25.1	NSR	Capacity- 2280 LPM at Head- 75 M.	Each	1				
1.26	NSR	Providing & fixing 150 mm diameter MS Class 'C' for diesel engine exhaust pipe (including all fittings, clamps, steel support) of suitable dia for the diesel engine. The pipe shall be provided insulation with fibre glass wool and wrapped with 24g. aluminium sheet complete with all respect.	Metre	20				
1.27	NSR	Supply, Installation, Testing & Commissioning of double flanged vertical air vessel fabricated shell from 10 mm thick & dished ends 12 mm thick M.S.plate, suitable for working pressure of 18 kg/cm <sup>2</sup> and test pressure of 27 kg/cm <sup>2</sup> , 450 mm dia and 2.00 m high for fire pumps complete with four nos dual setting pressure switches to operate jockey and main pumps at drop of pressure as given in the specifications.	Each	1				
1.28		Providing and fixing heavy duty PVC insulated, PVC armoured conductor cables 1100 V grade including necessary support clamps and connection lugs complete in all respects.						
1.28.1	NSR	Power cable 3.5 core 95 sq mm aluminium conductor armoured cable	Metre	50				
1.28.2	NSR	Power cable 3 core 10 sq mm Copper conductor armoured cable.	Metre	40				
1.29	NSR	Providing and fixing 250 mm dia suction header fabricated from 8 mm thick M.S. plate rolled and welded pipe suction header with inlets & outlets of 200/150/100/80 mm dia as required,all outlets and ends with flanged connections blank flanges, painting with one coat of zinc chromate primer and two or more coats of synthetic enamel paint to give an even shade, structural supports as required common for fire hydrant and sprinkler systems.	Metre	10				

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.30	NSR	Providing and fixing 200 mm dia delivery header fabricated from 8 mm thick M.S. plate rolled and welded, with with 150/100/80/50 mm dia inlets & outlets as required , including painting with one coat of zinc chromate primer and two or more coats of synthetic enamel paint to give an even shade and required structural supports. All outlets and inlets to be provided with MS flanges, the cost of which shall be included in the rate of header.	Metre	10				
1.31		Providing and fixing resilient rubber neoprene lined single arch vibration eliminators with unit control suitable for raw water upto 45°C temperature working pressure 12 kg and test pressure 20 kg/cm <sup>2</sup> .						
1.31.1	NSR	80 mm dia.	Each	1				
1.31.2	NSR	100 mm dia	Each	3				
1.31.3	NSR	150 mm dia	Each	2				
1.32		Design, manufacture, supplying, fixing in position, testing and commissioning of the following front operated cubicle type, front access 2mm thick mild steel sheet, free standing, dust and vermin proof, switchboard with IP42 protection with hinged and lockable doors complete with interconnections, tinned copper crimping lugs, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system and suitable for a fault level of 25 MVA symmetrical at 415 volts.						
		All switchboards shall have provision for entry of cables from the top or bottom as required.						
		All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The busbars insulation shall be with heat shrinkable sleeves. SMC/DMC shrouds and busbar supports shall be used. Padlocking facility shall be provided on all outgoing feeders doors and switch handles shall be lockable in OFF position.						
		<b>MCC for Fire Fighting Pumps at Main Pump Room</b>						
		<b>Incoming</b>						
		One incoming main TPN MCCB of 400 amp, 25 KA required rating.						
		One-Digital voltmeter with phase selection push button = 1Nos.						
		3 Phase indicating lamps, instrument fuses and switches.						
		1 No. Digital Ammeter						
		<b>Bus Bar &amp; Outgoing</b>						
		400 Amp TPN tinned copper Bus Bar.with heat shrinkable insulation sleeve.						
		One 250 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 25KA						
		One 63 Amp.TP +NL M.C.C.B. with rotary handle of breaking capacity 25KA						
		One Fully Automatic Star-Delta starters suitable for 75-100 HP Pump Motor with over load relay timer push buttons and Auto/Manual selector switch and single phase preventer relay.						
		One Fully Automatic Star-Delta starters suitable for Jockey Pump Motor 15 HP with over load relay, timer push buttons and Auto/Manual selector switch and single phase preventer relay.						
		Two panel type Digital Amp. meters one for each motor with ASS. CTS etc.						
		Two sets of On/Off - neon indicating lamp.						
		One 300 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 25KA Spare						
		<b>Diesel Engine Control</b>						
		i) Automatic selector switch and 3 attempts starting devices, electronic timer, relays, auxiliary switches, tripping relays, contactors, push buttons for manual start/stop etc., to make the equipment automatic as per the functional requirement.						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		ii) Battery charging unit suitable for 24 V DC with boost & trickle charger, selector switch with suitable rating transformer, rectifier, RC filter network, fuses on AC or DC protection 0-30 A DC digital Ammeter. Charger should be cut off when the engine is started & battery shall be charged from battery charging alternator provided in the engine.						
		iii) Suitable type & rating standard relays, contactors & other accessories for automatic operation the diesel engine.						
		iv) Indication LED's for high/low lub oil pressure, water temperature engine on indicator with suitable alarms & acknowledge button etc.						
		System Controller						
		i) Designing, supply, install, testing & commissioning of system controller to control operation of main electrification pump, diesel engine pump, main sprinkler fire pump, pressurisation pump, terrace pump in sequence as per specifications. The system controller should be compatible with BMS.						
		All interconnecting power & control wires/cables suitable size within the panel.						
1.32.1	NSR	MCC as described above	Set	1				
1.33	NSR	Providing and fixing 150 mm dia <b>CL `Y` Strainer</b> with bronze perforated sheet basket including rubber gasket, flanges, nuts, bolts and washers, complete as required.	Each	2				
1.34		Providing and fixing carbon-di-oxide type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:15683 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.						
1.34.1	NSR	Capacity 4.5 Kg.	Each	42				
1.35		Providing and fixing mechanical foam type fire extinguishers consisting of welded M.S. trolley mounted cylindrical body, squeeze lever discharge valve fitted with pressure discharge hose, discharge nozzle, trolley etc., ISI marked as per IS:IS:13386 finished externally with red enamel paint.						
1.35.1	NSR	Capacity 50 lit (D.G.Room)	Each	1				
1.36		Providing and fixing carbon-di-oxide fire extinguishers trolley mounted with all accessories internal discharge tube,high pressure discharge hose,discharge nozzle, ISI marked as per IS:2878 finished externally with red enamel paint.						
1.36.1	NSR	Capacity 22.5 kg.	Each	2				
1.37		Providing and fixing ABC Powder type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:15683 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.						
1.37.1	NSR	Capacity 4.0 Kg.	Each	42				
		<b>Total of Non Schedule Items</b>						

**PROPOSED CONSTRUCTION OF POLO MARKET, SHILLONG, MEGHALAYA**

**BILL OF QUANTITY PLUMBING WORK**

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>1.0</b>		<b>SANITARY INSTALLATIONS (SCHEDULE ITEM)</b>						
1.1	34.3	Providing fitting and fixing Vitreous china wall hang water closet (European type <b>W.C</b> pan 400mm high) with seat and lead, CP brass hinges and rubber buffers, CI/MS brackets, 40 mm dia flush band with fittings including painting of fittings and brackets, required. (Flushing Cistern to be paid separately)						
		(a) White.						
		(i) Medium.	Each	40				
1.2	34.6	Supplying, fitting and fixing concealed <b>cistern</b> with all internal fittings with CI brackets including fitting and fixing standard size CP flush pipe, union clamps etc. compete as directed and specified (pipes will be measured separately)						
		b) Medium.	Each	40				
1.3	34.8	Providing fitting and fixing vitreous china flat back type lipped front <b>urinal</b> basin of with automatic flushing cistern with standard flush pipe and CP brass spreader and brass unions, etc. complete including painting of fittings and brackets, cutting and making good the walls & floors wherever required.	Each	20				
1.4	34.11	Supplying fitting and fixing vitreous china division plate including fitting and fixing compete as directed and specified.						
		(a) White.						
		(i) Medium.	Each	16				
1.5	34.13	Providing vitreous China wash <b>basin</b> with CI/MS brackets, C.P brass chain with plug, PVC waste pipe including painting of fittings and brackets, cutting and making good the walls wherever required. (Pillar cock, stop cocks, waste coupling are to be paid separately)						
1.5.1	34.13.4	Parryware Make (Table Top Basin)						
		(a) White.						
		(i) Medium.	Each	40				
1.6	34.19	Providing fitting and fixing Decorative <b>Mirror</b> complete as directed and specified.						
		(b) Medium.	Each	40				
1.7	34.23	Providing, fitting and fixing Liquid soap dispenser and liquid soap container complete as directed and specified.						
		b) Medium	Each	40				
1.8	34.27	Providing, fitting and fixing Chrome Plated robe hook complete as directed and robe hook complete as directed and specified.						
		b) Medium	Each	40				
1.9	34.30	Providing, fitting and fixing Chrome Plated TOILET PAPER holder complete as directed and specified.						
		b) Medium	Each	40				
1.10	34.31	Providing, fitting and fixing Chrome Plated waste coupling complete as directed and specified.	Each	40				
1.11	34.32	Providing, fitting and fixing Chrome Plated bottle trap complete as directed and specified.	Each	40				
1.12	34.33	Providing, fitting and fixing Chrome Plated <b>bottle trap</b> pipe complete as directed and specified						
1.12.1		(b) Pipe for bottle trap 450mm long	Each	40				
1.13	36.7	Supplying fitting and fixing C.P. <b>bib cock</b> 15mm dia of approved brand directed and specified (G.I. & C.P. pipes will be measured separately)						
1.13.1		a) Bib cock short body	Each	5				
1.13.2		b) Long body bib cock with wall flange	Each	5				
1.13.3		c) Two way long body bib cock with wall flange	Each	40				
1.14	36.9	Supplying fitting and fixing chrome plated (C.P.) stop-cock of approved brand and size as mentioned below as directed and specified.(G.I. & C.P pipes will be measured and paid separately)						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		c) 15mm dia Angular with long thread	Each	80				
1.15	36.11	Supplying, fitting and fixing C.P. pillar cock 15mm dia as directed.						
		b) Medium	Each	40				
1.16	36.15	Supplying fitting and fixing Health faucet with 1m long flexible tube with wall flange as directed and specified.						
		b) Medium	Each	40				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>2.0</b>		<b>DRAINAGE INSTALLATIONS (SCHEDULE ITEM)</b>						
2.1	34.35	Supplying, fitting and fixing I.S.I marked or similar approved H.C.I pipes and fittings like bends/ Tees & Y junctions/ Reducers etc. including bolts and nuts and other fittings as required and complete at all levels including below G.L as directed and specified						
2.1.1	34.35.1	H.C.I pipe including bolts and nuts and other fittings as directed and specified.						
	(a)	In exposed surfaces or in trenches						
	(ii)	100 mm dia.	Rm	450				
	(iii)	50 mm dia.	Rm	10				
2.1.2	34.35.2	H.C.I plain bend including bolts and nuts and other fittings as directed and specified.						
	a)	In exposed surfaces or in trenches.						
	(ii)	100 mm dia.	Each	178				
	(iii)	50 mm dia.	Each	10				
2.1.3	34.35.4	H.C.I plain single equal junction/plain tee including bolts and nuts and other fittings as directed and specified.						
	(a)	In exposed surfaces or in trenches						
	(ii)	100 mm dia.	Each	12				
	34.35.5	H.C.I single equal Tee junction with door including bolts and nuts and other fittings as directed and specified.						
	(a)	In exposed surfaces or in trenches						
	(ii)	100 mm dia.	Each	18				
2.1.4	34.35.6	H.C.I plain equal Y junction including all necessary fittings as directed and specified.						
	(a)	In exposed surfaces or in trenches						
	(ii)	100 mm dia.	Each	100				
2.2	34.36	Supplying, fitting and fixing PVC pipes/bends/ Junctions etc. of Supreme/Prince or other ISI approved make, including joining ,fitting and fixing with clamps etc. as necessary complete at all levels including below G.L as directed and specified.						
2.2.1	34.36.1	PVC pipes of 6 Kg/cm2 as directed and specified.						
	a)	160 mm dia.	Rm	425				
	b)	110 mm dia.	Rm	25				
2.2.2	34.36.2	87.5 degree PVC bend as directed and specified.						
	a)	160 mm dia.	Each	25				
	b)	110 mm dia.	Each	5				
2.2.3	34.36.5	PVC Plain single tee as directed and specified.						
	a)	160 mm dia.	Each	25				
	b)	110 mm dia.	Each	5				
2.2.4	34.36.13	PVC coupler as directed and specified.						
	i)	110 mm dia.	Each	4				
2.3	34.37	Providing fitting and fixing 50mm dia. HCl cowl with cement caulking complete as directed and specified.	Each	7				
2.4	34.38	Providing fitting and fixing PVC cowl of ISI make complete as directed and specified.						
	a)	160 mm dia. PVC cowl of ISI make	Each	25				
	b)	110 mm dia. PVC cowl of ISI make	Each	5				
2.5	36.1	Supplying fitting and fixing G.I. Pipes(TATA/ SAIL/ NEZONE and their equivalent) with all necessary 'R' brand or similar approved G.I. Fittings such as bend, tee, elbow, reducer, nipple, plug, long screw fitting, H.W. clamps etc. complete at all levels including below G.L. as directed and specified. Concealed by chiselling or breaking brick wall/ C.C. wall/ R.C.C. wall and making good to the damaged structure						
2.5.1	(b)	Concealed by chiselling or breaking brick wall/ C.C. wall/ R.C.C. wall and making good to the damaged structure						
	(iii)	32 mm nominal bore	Rm	75				
	(ii)	40 mm nominal bore	Rm	10				
	(i)	50 mm nominal bore	Rm	75				
		<b>TOTAL C/F TO SUMMARY</b>						



S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>3.0</b>		<b>WATER SUPPLY INSTALLATIONS (SCHEDULE ITEM)</b>						
3.1	36.1	Supplying fitting and fixing G.I. Pipes(TATA/ SAIL/ NEZONE and their equivalent) with all necessary 'R' brand or similar approved G.I. Fittings such as bend, tee, elbow, reducer, nipple, plug, long screw fitting, H.W. clamps etc. complete at all levels including below G.L. as directed and specified. Exposed on wall						
3.1.1	(i)	50 mm dia, nominal bore	RM	85				
3.1.2	(ii)	40 mm dia, nominal bore	RM	35				
3.1.3	(iii)	32 mm dia, nominal bore	RM	260				
3.1.4	(iv)	25 mm dia, nominal bore	RM	100				
3.1.5	(v)	20 mm dia, nominal bore	RM	15				
3.2	36.5	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) Pipes, having thermal stability for hot and cold water supply including all CPVC plain and brass threaded fittings i/c fixing the pipe with clamps at 1.00m spacing. This includes jointing of pipes & fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge.,Concealed work, including cutting chases and making good the wall etc.						
3.2.1	b)	Concealed by chiselling or breaking brick wall/ C.C. wall/ R.C.C. wall and making good to the damaged structure.						
	ii)	20 mm OD Pipe	RM	175				
	iii)	25 mm OD Pipe	RM	105				
	iv)	32 mm OD Pipe	RM	40				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
4.0		<b>EXTERNAL SEWERAGE &amp; DRAINAGE SYSTEM ( SCHEDULE ITEM)</b>						
4.1	1.1	Earthwork in excavation upto a depth of 2m below the existing ground level for foundation trenches of foundations, footings of column/ walls, retaining walls, septic tank etc. including bailing out water where necessary and removal of surplus earth with all lead and lifts as directed and specified for the following classification of soils.						
	c)	In soft or laminated rock or medium shale	Cum	350				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
5.0		DSR-2016 ITEMS ( SCHEDULE ITEMS)						
5.1	12.12	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	Each	30				
5.2	17.60	Providing and fixing trap of self cleansing design with screw down hinged grating with or without vent arm, complete including cost of cutting and making good the walls& floors.						
5.2.1	17.60.1	100 mm inlet and 100 mm outlet						
5.2.1.1	17.60.1.1	Sand cast iron S&S as per IS:989	Each	47				
5.3	17.65	Painting H.C.I soil, waste and vent pipes and fittings with paint of any colour such as chocolate, grey or buff etc. over a coat of primer (of approval quality) for new work						
5.3.1	17.65.1	100mm dia H.C.I pipe	Metre	450				
5.4	18.32	Constructing masonry chamber 30x30x50cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for stop cock with C.I. Surface box 100x100x75 mm ( inside) with hinged cover fixed in cement concrete slab 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.						
5.4.1	18.32.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	2				
5.5	18.33	Constructing masonry Chamber 60x45x50 cm,inside with 75 class designation brick work in cement mortar 1:5 (1 cement:5 fine sand) for water meter complete with C.I. Doble flap surface box 400x200x200mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 corase sand: 4 graded storr aggregate 20mm nominal size) necessary excavation foundation concret 1:5:10 (1 cement:5 fine sand : 10 graded stone aggregate 40 mm nominal size ) and inside plastering with cement mortor 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design.						
5.5.1	18.33.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	2				
5.6	18.38	Painting G.I. pipes with two or more coats of synthetic enamel paint of approved quality over a coat of red oxide zinc chromate primer as directed by the Engineer-in-Charge (shade as per pipe colour code).						
5.6.1	18.38.2	20 mm dia. nominal bore	Metre	15				
5.6.2	18.38.3	25 mm dia. nominal bore	Metre	100				
5.6.3	18.38.4	32 mm dia. nominal bore	Metre	260				
5.6.4	18.38.5	40 mm dia. nominal bore	Metre	35				
5.6.5	18.38.6	50 mm dia. nominal bore	Metre	85				
5.7	19.3	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size) up to haunches of S.W/RCC pipes including bed concrete as per standard design.						
5.7.1	19.3.4	250 mm dia. R.C.C. pipe	Metre	150				
5.7.2	19.3.5	300 mm dia. R.C.C. pipe	Metre	100				
5.8	19.4	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame o f 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:						
5.8.1	18.4.3	180 x 150 mm size P type						
5.8.1.1	18.4.3.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	2				

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
5.9	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :						
5.9.1	19.6.3	250 mm dia. R.C.C. pipe	Metre	150				
5.9.2	19.6.4	300 mm dia. R.C.C. pipe	Metre	100				
5.10	19.7	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :						
5.10.1	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :						
5.10.1.1	19.7.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	4				
5.11	19.21	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1cement: 2 coarse sand : 4 graded stone aggregate 20mm nominal size) cement plastered on both sides with cement mortar 1:3 (1cement : 3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete.						
	19.21.1	For Pipes 250 to 300 mm dia.	Each	2				
5.12	19.27	Constructing bricks masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :						
5.12.1	19.27.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	20				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
6.0		<b>SANITARY INSTALLATIONS (NON SCHEDULE ITEM)</b>						
6.1	NSR	Providing and fixing 15mm SS connecting pipe 450mm long with C.P. brass nuts, washers complete in all respects.(Jaquar Cat No. ALD 803AB or approved equivalent)	Each	80				
6.2	NSR	Providing and fixing Stainless Steel Grab Bar Jaquar cat. No. AHS-1503 or approved equivalent,Including cutting and making good the walls wherever required	Each	4				
6.3	NSR	Providing and fixing fully automatic Hand dryer including all fittings complete.Euronics Model-EH 21NW	Each	8				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>7.0</b>		<b>DRAINAGE INSTALLATIONS ( NON SCHEDULE ITEMS)</b>						
7.1	NSR	Providing and fixing G.I. inlet fitting with 1 or 2 inlets fabricated from 100 mm dia G.I. pipes and welded G.I. sockets fixed to C.I. trap with lead caulked joint and set in cement concrete as per drawing complete.	Each	47				
7.2	NSR	Providing and fixing of 100x50 mm GI Reducing elbow fix in floor with cement mortar.	Each	24				
7.3		Providing and fixing cast brass clean out plug with suitable insert keys for opening, male threaded joint with GI female threaded socket caulked to CI pipe including cost of Solvent cement or Other Joint.						
7.3.1	NSR	with 100 mm dia. Pipe	Each	43				
7.4	NSR	Providing and fixing in position 125x125 mm stainless steel grating for floor trap/floor drain including fix to floor with cement mortar.	Each	71				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>8.0</b>		<b>WATER SUPPLY INSTALLATIONS ( NON SCHEDULE ITEMS)</b>						
8.1		Providing and fixing forged brass ball valve of brass body with hard chrome plated steel ball inside PTFE (Teflon) seat & ring with chrome plated centre handle with female BSP threads complete in all respects.						
8.1.1	NSR	20 mm nominal bore	Each	2				
8.1.2	NSR	25 mm nominal bore	Each	1				
8.1.3	NSR	32 mm nominal bore	Each	12				
8.1.4	NSR	40 mm nominal bore	Each	1				
8.1.5	NSR	50 mm nominal bore	Each	2				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>9.0</b>		<b>EXTERNAL SEWERAGE &amp; DRAINAGE SYSTEM ( NON SCHEDULE ITEMS)</b>						
9.1		Providing, laying and jointing HDPE pipes confirming to IS: 14333 type PE-100, (6 Kg/Cm <sup>3</sup> ) including all fittings wherever required e.g., tees, bends of any degree, couplings, adapters, plugs, unions etc. and jointing as manufacturer recomondation etc. including testing of joints etc. complete.						
9.1.1	NSR	250 mm OD	Metre	80				
9.2		Supply of Grease separator ECO-JET-OD NS 04 with sludge trap capacity 400 Ltrs. according to DIN EN 1825, for free standing installation, of polyethylene, material LLD-PE, with grease storage capacity 200 liters, total wastewater capacity 830 liters, with direct suction, with connecting flange DN 65 PN 10 For local suction line R 2 1/2", with fire hose quick coupling B with 2 odour proof maintenance openings DN 350 inlet and outlet DN 100. With max dimensions:						
9.2.1	NSR	770x2000x1680mm With Inspection Windows & Filling Device.(Make : ACO Part No. 3554.64.41 or Equivalent)	Each	1				
		<b>TOTAL C/F TO SUMMARY</b>						



S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>10.0</b>		<b>PUMPS &amp; ALLIED WORKS ( NON SCHEDULE ITEMS)</b>						
10.1		Supply, installation, testing & commissioning of Horizontal inline multistage pumping set (Imported) with Stainless steel-304 body, Stainless steel-304 impeller, Stainless steel-304 casing, shaft of Stainless steel-316 and C.I. base & head with mechanical seal, connected to a TEFC induction motor suitable for 415+/- 10% volts, 3 phase 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads under foundations, 80x40 mm I section base plate bolted to cement concrete foundations complete. Vendor to submit performance curves and technical catalogue of the proposed model for review and information.						
10.1.1	NSR	<b>Filter Feed Pump ( Dom. Water)</b> Set of Two Pumps( 1 Working+ 1 Standby) Capacity 120 LPM Head 25 M. HP 1.5 HP ( Approx.).	Set	1				
10.1.2	NSR	<b>Water Make up Pump to STP</b> Set of Two Pumps( 1 Working+ 1 Standby) Capacity 120 LPM Head 25 M. HP 1.5 HP ( Approx.).	Set	1				
10.1.3	NSR	<b>Domestic Water Transfer Pumps</b> Set of Two Pumps( 1 Working+ 1 Standby) Capacity 120 LPM Head 40 M. HP 2.0 HP ( Approx.).	Set	1				
10.1.4	NSR	<b>Flushing Water Transfer Pumps</b> Set of Two Pumps( 1 Working+ 1 Standby) Capacity 120 LPM Head 40 M. HP 2.0 HP ( Approx.).	Set	1				
10.2		Supply, installing, testing and commissioning of submersible single stage single entry pumps with C.I. body and C.I. two vane enclosed type impeller connected to TEFC submersible motor for 415 ± 10% volts, 3 phase, 50 cycles A.C. power supply with mechanical seal, pump connector unit with rubber diaphragm and bend, vertical discharge pipe, guide pipe and chain in built level controller, sequence running controller, dry running Protection complete in all respects. Complete With media saturation arrangement twin lobe rotary air blower with motor , base frame , pulleys , v belts, drives guard suction pipe , accessories, painting, testing and commissioning complete with approved quality and make as required as per instruction of site incharge.  (Pumps shall be installed in a set of two pumps One working and One standby)						
10.2.1	NSR	<b>Water Supply Pump Room Drainage Pump</b> (Pumps to be suitable to handle solids upto 12 mm size) Capacity - 2.0 LPS (Each) Head - 15 M H.P. - 1.0 HP Approx.	Set	1				
10.3		Providing and laying G.I. "C class" pipes and fittings conforming to IS: 1239 (Heavy class) Jointing with flanged joints including nuts & bolts, 3.0 mm thick compressed asbestos gasket etc, including with fittings, union and clamps including cutting holes in wall, makes chases in wall and making good the same in cement mortar 1:2 (1cement : 2 coarse sand) including painting of pipes with two coats of synthetic enamel paint over a coat of steel primer, as directed by Engineer-in-Charge complete in all respects.						
10.3.1	NSR	50mm dia	Metre	45				
10.3.2	NSR	65mm dia	Metre	40				
10.3.3	NSR	80mm dia	Metre	20				
10.3.4	NSR	100mm dia	Metre	10				
10.4		Providing and fixing cast iron wafer type butterfly valves (PN-10) complete with 2 nos. matching flanges (Table-E),bolts, nuts, 3.0 mm thick insertion neoprene gasket.						
10.4.1	NSR	50mm dia	Each	8				
10.4.2	NSR	65mm dia	Each	10				
10.4.3	NSR	80mm dia	Each	2				
10.4.4	NSR	100mm dia	Each	2				

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
10.5		Providing and fixing of cast iron dual plate wafer type check valves (PN-10) including 2 nos. matching flanges ( Table-E), nuts, bolts, 3.0 mm thick thick insertion neoprene gasket.						
10.5.1	NSR	50 mm dia	Each	8				
10.5.2	NSR	65 mm dia	Each	2				
10.6		Providing and fixing resilient rubber neoprene lined style arch vibration eliminators suitable for raw water upto 45 deg.C. Temperature working pressure upto 8 Kg/Sqcm.						
10.6.1	NSR	50mm dia	Each	8				
10.6.2	NSR	65mm dia	Each	2				
10.7		Providing and fixing CI Y type suction strainer with gunmetal or brass internal parts installed outside water tanks.						
10.7.1	NSR	100 mm dia.	Each	2				
10.8		Supplying, installing, testing and commissioning controllers with low volatage relays, stainless steel probes and PVC shroud wiring from tank top to probes of required.						
10.8.1	NSR	<b>For Water Supply Pumps</b>						
		To start pump when water level is low in U.G. tank (Domestic water) and shut off pump when U.G. tank (Domestic) is full. Also to stop when water level is low in raw water underground tank.	Each	4				
10.8.2	NSR	<b>For Sump Pumps:</b>						
		To start pump when water level is high in sump and shut off pump when sump is empty. Both pumps are start when sump is over flowing.	Each	2				
10.9		Providing and fixing motor control centre fabricated from 14g M.S. sheet with stove enamelled finish and comprising of :-						
10.9.1		<b>For Water Supply Pumps (At Pump Room)</b>						
		<b>Incoming:-</b>						
		One incoming main TPN MCCB of 100 amp, 35KA required rating.						
		Fully taped aluminum TPN 100 Amp. bus bar of required capacity in a separate bus bar chamber						
		1 no. voltmeter with VSS.						
		3 Nos. LED type Phase indication lamps (R,Y,B) with 2A control MCB						
		one set of LED type ON, OFF indication lamps. (R,G)						
		<b>Outgoings:-</b>						
		01 Nos. Amp meters with (0-160 A) with required CT ratio and 2A control MCB, LED type ON/OFF/Trip indication lamps with auto manual selector switch.						
		10 Nos. TPN MCB of 32 A with 10 KA service breaking capacity for filter feed pumps, water make up pumps to STP area & sump pumps 2.0/7.5 HP motor.						
		10 Nos. Amp meters with (0- 50 A) with required CT ratio and 2A control MCB, LED type ON/OFF/Trip indication lamps with auto manual selector switch.						
		10 Nos. Auto DOL Starter for 2.0-7.5 HP motor. Each shall have Auto/ Manual selector switch, over load relay, single phasing preventor, ON/OFF/ Trip indication lamps, ON/OFF push Buttons, contactor and suitable No. of Potential free contacts for remote / local operations, indication & interlocking and Building Management system.						
		05 Nos. TPN MCB of 40 A with 10 KA service breaking capacity as spare.						
		Space for five sets liquid level controllers.						
	NSR	All internal wiring colour coded from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar. All the cable entry to the panel shall be from the top. (The shop drawing to be prepared and approved before fabrication)	Set	1				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
11.0		<b>WATER TREATMENT EQUIPMENTS</b>						
11.1		Supply Installation,Testing & Commissioning of vertical self supporting Dual Media Filter fabricated from MS sheet as per IS: 2825, (minimum thickness of shell & Dish ends as per manufacturer design) pressure gauges, sample cock, GI class 'C' face piping, CI butterfly valves and all accessories , with initial charge of filter media including anthracite, painting inside with epoxy paint and outside with two coat of red oxide primer and two or more coat of synthetic enamel paint, testing and commissioning complete.						
11.1.1	NSR	<b>For Domestic Water Supply</b>						
		Capacity- 7200 LPH						
		Filtration rate- 14000 LPH/M <sup>2</sup>						
		Filter Dia approx. - 750 mm						
		Working pressure: 3.0 Kg/sq cm.						
		Test pressure : 4. 5 Kg/sq cm	Each	1				
11.2		Supply Installation,Testing & Commissioning of vertical self supporting Activated Carbon Filter fabricated from MS sheet as per IS: 2825, (minimum thickness of shell & Dish ends as per manufacturer design) pressure gauges, sample cock, GI class 'C' face piping, CI butterfly valves and all accessories , with initial charge of filter media including anthracite, painting inside with epoxy paint and outside with two coat of red oxide primer and two or more coat of synthetic enamel paint, testing and commissioning complete.						
11.2.1	NSR	<b>For Domestic Water Supply</b>						
		Capacity- 6000 LPH						
		Filtration rate- 8500 LPH/M <sup>2</sup>						
		Filter Dia approx. - 750 mm						
		Working pressure: 3.0 Kg/sq cm.						
		Test pressure : 4. 5 Kg/sq cm	Each	1				
11.3		Supply Installation,Testing & Commissioning of metering pump type chemical doser with 100 lits. HDPE solution tank,injection fitting assembly,suction and delivery hose upto the point of injection, capacity 0-6 lph, complete in all respects.						
11.3.1	NSR	Chlorination of Domestic Water	Each	1				
		<b>TOTAL C/F TO SUMMARY</b>						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
12.0		<b>SEWAGE TREATMENT PLANT ON SBR TECHNOLOGY ( NON SCHEDULE ITEMS)</b>						
		Design, Supplying, Installing, Testing & Commissioning of Sewage Treatment Plant capacity 75 KLD (excluding excavation, back filling & disposal of surplus earth /Civil construction work) for the following duty:						
		Nature of effluent - Domestic Sewage from Toilet use , kitchen waste and other areas of residential buildings.						
		Incoming parameters:						
		pH - 6 - 8.5						
		BOD5 - upto 250-350 Mg/L						
		S. Solids - 250 - 400 Mg/L						
		COD - upto 450-600 Mg/L						
		Oil & Grease - 50-100 Mg / L						
		Final effluent discharge standard after treatment						
		pH - 6.0 - 8						
		BOD5 - Less than 20 Mg/L						
		S. Solids - Less than 30 Mg/L						
		COD - Less than 100 Mg/L						
		Oil & Grease - Less than 10 Mg/L						
		E Coli - Nil						
		All piping, valves & level indicator/ controller etc. within plant room.						
12.1	NSR	Supply, installation, testing & commissioning of 2 Nos Mechanical Stainless Steel Bar Screen with suitable lifting arrangement for required sizes (size 800 mm wide x 900 mm high approx.	Set	1				
12.2	NSR	Supply, installation, testing & commissioning of electronic type level indicator and controller for automatic operation of the system with high/low level alarm complete with auxillary NO/NC contacts.	Lot	1				
		Contractor shall ensure submission of detailed GA drawings (Plan & Section), P&I diagram, schematic diagram for the above said component and additional component if so required for the complete working of the STP.						
12.3		Supply, installation, testing & commissioning of non clog open impeller type pumps, having CI casing & CI impeller complete with all accessories, motor of required capacity. Delivery header with isolation valve and NRV, lifting arrangement, pressure gauge on delivery line with isolation cock level controller with wiring to control the level of sump automatically. Pump shall have following duty for reference and vendor to confirm on design base.						
12.3.1	NSR	Submersible Sewage Transfer Pumps 2 Nos. (1 Working + 1 Standby ) (Solid Handling Cap. 25 mm) Flow rate (each) = 6 M <sup>3</sup> / Hr Head = 10 Mtr	Nos.	2				
12.3.2	NSR	Plant Room Sump Pump 2 Nos (1 Working + 1 Standby) Flow rate of each = 8 M <sup>3</sup> / Hr Head = 10-12 Mts (Solid Handling Size for this pump shall be 30-40 mm).	Nos.	2				
12.3.3	NSR	Sludge Transfer Pumps 2 Nos (1 Working + 1 Standby) (Solid handling cap. 8.5 mm) Flow rate (each) = 5 M <sup>3</sup> / hr Head = 12 Mtr	Nos.	2				
		Cost shall be inclusive of PVC flexible Hose pipe ( for piping submerged in effluent) with M S epoxy piping (for piping non-submerged in effluent)						
		Provision of guide ropes to guide submersible pump from upper level to operational level in sump basin with channels / angle section of MSEP shall be made by the STP contractor.						
		Air diffusion system shall include the following:						
12.4	NSR	Supply, installation, testing & commissioning of Twin type rotary air blowers (1 W + 1 S) Capable of delivering 160 cum/hr (each) of free air at 0.6 kg/cm <sup>2</sup> driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply	No.	2				

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
12.5	NSR	Air piping shall comprise of pipes droppers/ laterals with M S (epoxy coated) Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges etc cutting chases & making good in Plant Room. All submerged piping will be SS-304	Lot	1				
12.6		Non clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired Fine /coarse aeration bubble diffusers as required.						
12.6.1	NSR	For equalization tank -1 No.	Lot	1				
12.6.2	NSR	For sludge holding tank - 1 No.	Lot	1				
12.6.3	NSR	SBR reactor tank- 2 Nos.	Lot	1				
		Air dispersion system shall be provided for Equalisation Tank, Sludge holding Tank and SBR reactor Tanks.						
12.7		Providing and fixing all piping (as described below) and isolation control valves for making the system complete.						
12.7.1	NSR	SS 304 : Submerged air piping MS Epoxy : Air piping, Filters & other Eqp. PVC piping ASTM SCH 40 :Pumped effluent & tank overflow pipe line	Job	1				
12.8	NSR	Supplying, installing, testing & commissioning of Submersible Jet Aerator in Equalization Tank 2 Nos. (1 Working +1 Standby) Capacity : 25 M <sup>3</sup> /Hr MOC :CI	No.	2				
12.9	NSR	Supply, installation, testing & commissioning of motorized Moving Decanter to suit SBR tank with MOC SS-304 with scum guard and connected with ultrasonic level transmitter & ultrasonic level element for automatic control etc. complete as required.	No	1				
12.10	NSR	Providing and fixing wall mounted Oxylite (Mixed Oxidant) Generation System, based on ECA Technology, producing non toxic mixed Oxidant Solution at 1000 ppm of Oxidant Concentration . The solution should be at a pH -7 (Neutral ) suitable for 24x7 operations should produce 720 L per day . The system should have a single cell & supplied complete with appropriate dosing pumps , valves, piping, fittings, chemical dosing tank etc.	No	1				
12.11		Supply, installation, testing & commissioning of vertical inline multistage pumping set (Imported) with Stainless steel-304 body, Stainless steel-304 impeller, Stainless steel-304 casing, shaft of Stainless steel-316 and C.I. base & head with mechanical seal, connected to a TEFC induction motor suitable for 415+/- 10% volts, 3 phase 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads under foundations, 80x40 mm I section base plate bolted to cement concrete foundations complete. Vendor to submit performance curves and technical catalogue of the proposed model for review and information.						
12.11.1	NSR	Capacity : 10 M <sup>3</sup> / Hr Head : 25-30 M No. of Pumps (1 working + 1 standby)	Nos	2				
		Operation of pump shall be based on level controller proposed to be installed in tank as per site location. The contractor to ascertain the Head required for pumps as per site conditions and provide accordingly.						
12.12		Supplying, installing, testing and commissioning of MSEP vessel filter with all necessary accessories. Filter shall be suitable for minimum working pressure of 5 kg / cm <sup>2</sup> and shall include media, standard fittings like pressure gauges, sampling cock, rinse drain, vacuum breaker etc. The MS sheet thickness for shell shall be min. 8 mm and for dishess shall 10 mm. The internal surfaces of tank shall be treated with epoxy coaing and external surface with primer and anticorrosive enamel paint (Min. 2 coats). with frontal piping shall be 100 mm dia MSEP along with valves PN 1.0, test cock, air inlet for back washing and preesure gauges at inlet and outlet.						
12.12.1	NSR	<b>Multigrade Pressure Sand Filter</b> Flow Rate = 10 M <sup>3</sup> / Hr Filtration velocity : 15 Cum/Hr/Sqm Filter HOS : 1600 MM						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		Filter Diameter : 1000 MM.	Nos	1				
12.12.2	NSR	<b>Activated Carbon Filter</b>						
		Flow Rate = 10 M <sup>3</sup> / Hr						
		Filteration velocity : 15 Cum/Hr/Sqm						
		Filter HOS : 1600 MM						
		Filter Diameter : 1000 MM.	Nos	1				
12.13	NSR	Supply, installation, testing and commissioning of Filter Press of plate as required (size 24"x 24" x 23 nos plate for reference) with screw feed pumps of 2 m <sup>3</sup> /hr with adequate head (1Working+1Standby) with interconnecting piping and poly dosing system all complete.	Set	1				
12.14	NSR	Supply, installation testing and commissioning of digital flow meter suitable for 75 KLD Plant with preamplifier and microprocessor including necessary cabling, conduit, etc complete suitable for raw sewage application.	Set	1				
		<b>Electrical Panel With PLC Control</b>						
12.15	NSR	Supply, installation, testing & commissioning of the PLC based control panel with interlocking arrangement with supply pumps,suction pumps, modulating or shut-off valves including necessary wiring, magnetic switches & sensors complete to make the system functional with following interlocking						
		Construction: Compartmentalized Type Skid Mounted, MCC Cum PLC Control panel will be free standing; vertical, fabricated from CRCA steel sheet 14/16 G conforming to degree of protection IP-52 or better. Cable entry will be from bottom. Colour shade - RAL 7032						
		System Voltage: 380 to 410 Volts & 50HZ ( 415 V ±10% , AC, 50 HZ ±5% for India ). Surge protection to be provided at every applicable point.						
		PLC: The Programmable Logic Controller [PLC] shall consist of a PLC hardware, with 16k (min) program memory shall be protected by a backup battery with further memory protection from an EEPROM.						
		HMI: 5.5 Inch Colour Touch screen HMI, will be mounted on A Man-Machine Interface Terminal (MMI) shall be mounted on the front of the main control panel for control of the activated sludge plant. It will provide a display of the process parameters and equipment status. The display will have an associated keypad. The system will allow operator changes to set points and control of equipment. The terminal shall include an alarm annunciation with a dedicated alarm page and allow acknowledgment of alarms.	Job	1				
		<b>Motor Control Centre</b>						
12.16	NSR	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre shall be fabricated with reinforcement of suitable size angle iron, channel 'T' sections irons and/or flats wherever necessary. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels.						
		Incoming						
		300 amps TPN MCCB with the following accessories:						
		a. 0-500 volts 96 x 96 mm square electronic voltmeter with selector switch shall be protected by 2 amps TP MCB. 1 Set						
		b. 0-100 amps 96 x 96 mm square electronic ammeter with selector switch and 100./5 amps 10 VA CL:1 CTs. 1 Set						
		c. Phase indicating lamps shall be protected by 2 amp SP MCB 3 Sets						
		Bus Bar						
		250 amps TPN (15 KA) copper bus bar with heat shrinkable insulation sleeves.						
		Required Nos of required capacity TPN MCB for direct on line starter/star delta starters and out going feeders to all the pumps/blowers etc. (including standbys). Each compartment shall contain auto / manual selector switch and indicating lamp with MCB's for 'ON/OFF/TRIP' status of motor						

S.NO.		DESCRIPTION	UNIT	QTY.	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		Spare MCB's of following capacities: 32 amps TPN MCB's 3 Nos.						
		All MCCBs / MCBs shall be of 15 KA breaking capacity and suitable for motor duty application.						
		All motor starters shall be provided with Automatic level controller						
		DOL starters shall be used for mototrs below 10HP and Star-Delta Starters for other motors						
		Provision shall be made for providing potential free contacts to all pumps starters	Job	1				
		Supplying & Fixing of Cables , Conector, Cable Trays, to make Electrical Installation Complete. Necessary cable alleys, internal / cabling, wiring, cabling from MCC to various pumps / equipment and interlocking, earthing and earthing pits for all equipment	Lot	1				
		<b>TOTAL C/F TO SUMMARY</b>						

BILL OF QUANTITY

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>1.0</b>			<b>SUB HEAD-I :- EARTH WORK</b>						
1.1		1.1	Earth work in excavation upto a depth of 2m below the existing ground level for foundation trenches of foundations, footings of column/ walls, retaining walls, septic tank etc. including bailing out water where necessary and removal of surplus earth with all lead and lifts as directed and specified for the following classification of soils.						
1.1.1		(a)	In ordinary soil	755	Cu.m.				
1.1.2		(b)	In hard/ dense soil	375	Cu.m.				
1.1.3		(c)	In soft or laminated rock or medium shale	375	Cu.m.				
1.2		1.1.1	Extra over item no.1.1 above for each 1m depth or part thereof beyond the initial depth of 2m	4025	Cu.m.				
1.3		1.2	Shuttering and shoring the earth at different levels in foundations where necessary with required prop, struts, planks, timbers, nails etc. including dewatering if necessary, complete as directed and specified (measurement to be taken in the face area timbered)						
		(a)	Upto a depth of 1.5 metre	6035	Cu.m.				
		(b)	Above 1.5 m upto 3.00 m depth	4025	Cu.m.				
1.4		1.4	Earthwork in filling including necessary carriage, watering, ramming etc. complete as directed and specified.						
		1.4.1	Earth/ Sand filling in plinth in layers not exceeding 150mm thick						
		(a)	With earth/stone dust obtained by carriage upto 8 km	4360	Cu.m.				
1.5		(b)	With available excavated earth including breaking of clods, consolidating each layer by ramming and watering with all lead and lifts.	4025	Cu.m.				
1.6		1.7	Disposal of surplus earth from the work site including loading and unloading complete as directed.						
		(a)	Lead upto 5kms	6035	Cu.m.				
1.7		1.8	Earth work in Excavation by mechanical means over areas (exceeding 30cm in depth, 1.5m in width as well as 10sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and nearly dressed.						
a)		(a)	In ordinary soil	5030	Cu.m.				
b)		(b)	In medium rock	2515	Cu.m.				
c)		(d)	In hard rock (blasting prohibited)	2515	Cu.m.				
			<b>EARTH WORK SUB HEAD TOTAL</b>						
<b>2.0</b>			<b>SUB HEAD-II :- CEMENT CONCRETE WORKS</b>						
2.1		2.1	Plain cement concrete works with coarse aggregate of sizes 13mm to 32mm in foundation bed for footing steps, walls, brick works etc. as directed and specified including dewatering if necessary, and curing complete (shuttering where necessary shall be measured and paid separately).						
a)		(b)	In prop. 1:4:8 (1 cement:4 coarse sand : 8 coarse agg. by volume (using mixture machine)	200	Cu.m.				



Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
2.2		2.2	Plain cement concrete floor base in prop 1:3:6 laid in alternate bays as specified with coarse aggregate of size 13mm to 32mm including dewatering if necessary, and curing etc. complete.						
		(a)	35 mm thick in prop 1:3:6	30	Cu.m.				
2.3		2.3	Providing and laying 25mm thick damp proof course with cement concrete in prop 1:1.5:3 with graded stone aggregate of 10mm down nominal size including providing approved damp proof admixture in proportion as recommended by the manufacturer including curing etc. complete as directed.	335	Sq.m				
2.4		2.4	Plain cement concrete apron in prop 1:4:8 with 20mm down graded coarse aggregate Over soling including neat cement finish using cement slurry 2.75Kg. of cement per sq.m. of floor (soling to be measured separately).						
a)		(a)	35 mm thick in proportion 1:4:8	335	Sq.m				
2.5		19.3	Providing plinth protection with bricks laid on edge and grouted with cement mortar 1:4 (1 cement : 4coarse sand) and finishing with cement pointing in prop. 1:1 including necessary levelling and preparing the subgrade complete as directed.	335	Sq.m				
<b>CONCRETE WORK SUB HEAD TOTAL</b>									
<b>3.0</b>	<b>SUB HEAD-III :- REINFORCED CEMENT CONCRETE WORKS</b>								
3.1		2.6	Providing and laying Concrete in Reinforced Cement Concrete Works Using Batching Plant/ RMC/ Truck mounted batching plant including Transit Mixer and Concrete Pump with coarse sand & 20mm down graded stone aggregate including dewatering if necessary, and curing complete with all necessary laboratory tests etc. but excluding cost of form work and reinforcement for reinforced cement concrete work (form work and reinforcement will be measured and paid separately). (Without using admixture, plasticiser)						
a)		(c)	RCC Grade M25	50.00	Cu.m.				
b)		(d)	RCC Grade M30	7450	Cu.m.				
c)		(e)	RCC Grade M40 (PSC Grade)	2150	Cu.m.				
3.2		2.7	Extra over item no.2.5.2, 2.5.3, 2.5.4, 2.5.5 above for each subsequent floor or part thereof above the 1st floor level.	3200	Cu.m.				
3.2. a)		NSR 1A	Conducting load test upto a maximum test load of 1.5 times the safe load capacity on the isolated/ combined foundations including prepration of column head for testing, necessary excavation, all arrangement of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test reort, etc. All complete as per speifications, drawings and as directed by Engineer-in-charge.	10	Each				
3.3		29.1	Extra for providing and mixing normal Plasticizer Master Plast PL-1 of Choksey Chemicals /Dr. Sealkit Normal Plast (Asian Chemicals)/ RHEOMAC 707 of BASF @ 0.3% by weight of cement in concreting RCC structures as specified and directed by the Department complete at all levels.						
a)		(c)	RCC Grade M25	50.00	Cu.m.				
b)		(d)	RCC Grade M30	7395	Cu.m.				
		( f )	RCC Grade M40	2095	Cu.m.				
<b>REINFORCEMENT</b>									

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
3.4		2.8	Supplying, fitting and fixing in position reinforcement bars upto 1st floor level, conforming to relevant I.S. Code for R.C.C. work/ R.B. walling including straightening, cleaning, cutting and bending to proper shapes and length as per details, supplying and binding with 20G annealed black wire and placing in position with proper blocks, supports, chairs, spacers etc. complete. (Rates inclusive of all wastage, lappage, hooks, chairs, anchorage etc. and no measurements for the same is required)						
		a)	From Primary Sources like TATA/ SAIL/ ESSAR/ JINDAL/ SHYAM/ RINL						
		(ii)	Super Ductile (SD) TMT reinforcement bars	9760	Qntl				
3.5		2.9	Extra over item 2.8 (a, b, c) above for each subsequent floor or part thereof above first floor level.	3550	Qntl				
			<b>SHUTTERING/ FORMWORK</b>						
3.7		2.11	Providing form work of ordinary timber planking of thickness not less than 25mm and removal of the same for concrete members so as to give a rough finish including centering, shuttering, strutting and propping etc., for height of propping and centering of supporting floor to the soffit of the concrete member not exceeding 4.0M as specified for the following items:						
a)		(a)	Foundation, footings, bases of columns, pile cap, raft and mass concrete works etc.	1675	Sq.m				
b)		(j)	Arches/ slabs having curved surface in one direction. (Using 38mm thick plank)	245	Sq.m				
c)		(k)	Domes, Vaults and shell roofs having curved surface in both directions (only area of the underside shall be measured for payment).	105	Sq.m				
d)		(l)	Extra for each subsequent 1.0M height or part thereof beyond the initial height of 4.0M as mentioned in item no. 2.10	4675	Sq.m				
3.8		2.12	Providing form work of 12mm thick Plywood Board and removal of the same for concrete members so as to give a rough finish including centering, shuttering, strutting and propping etc., for height of propping and centering of supporting floor to the soffit of the concrete member not exceeding 4.0M as specified for the following items:						
a)		(a)	Columns, Pillars, Posts & Strut of square/ rectangular/ polygonal in plan or any shape like Tee/L etc. having plane vertical face	5685	Sq.m				
b)		(b)	Sides and Soffits of Beams, beam haunchings, cantilever girders, bressumers, lintels and horizontal ties.						
c)		(i)	For depth not exceeding 1.0M.	5685	Sq.m				
e)		(c)	Flat Surfaces such as soffits of suspended floors, roofs, landings, cantilever slabs, chajjas, balconies and the like.						
f)		(i)	Floors etc. upto 200mm in thickness.	10190	Sq.m				
h)		(d)	Sloping or Battering surfaces such as sloped slabs etc. including folded plates.						
i)		(i)	Where inclination to horizontal plane does not exceed 30° requiring shuttering only on the underside.	350	Sq.m				
k)		(e)	Vertical surface such as walls (any thickness), parapet walls, partitions and the like including attached pilasters, buttresses, plinth and string courses and the like.	1000	Sq.m				
l)		(f)	Vertical ties, fins, sun breaker, louvers, bands, dropwalls etc.	1055	Sq.m				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
m )		(g)	Staircase with sloping or stepped soffits including risers and stringers but excluding Landing.	665	Sq.m				
n )		(h)	Extra for each subsequent 1.0M height or part thereof beyond the initial height of 4.0M as mentioned in item no. 2.11	23645	Sq.m				
			<b>EXPANSION JOINT</b>						
3.9		26.10	Supplying fitting and fixing 200mm x 6mm thick A.C. plain sheet for vertical and horizontal expansion joints fixed to one side of column/ wall by necessary rawal plugs/ screws/ wooden plugs placed not more than 300mm c/c as directed and specified.	60.00	R.m				
3.10		26.11	Providing and fixing Dura board HD-100 pre-moulded compressible filler board at all heights and depths of minimum density 95kg/cum, non-staining having less than 1% water absorption, compression recovery of 93% (minimum) as per manufactured specification with polysulphide sealant to seal the expansion joint including preparation of surface, Polymer Modified Mortar (PMM) (Proportion 1cement: 3 sand:1 acrylic polymer) nosing, carriage of materials, cutting and placing to the required size complete at all levels as per drawings and direction of Engineer-in-Charge.						
			50mm thick	1140.00	Sq.m.				
			<b>R.C.C.WORK SUB HEAD TOTAL</b>						
<b>4.0</b>			<b>SUB HEAD IV :- FLOORING AND CLADDING WORK</b>						
4.1		3.3	40 mm thick cement concrete floor consisting of 25 mm under layer of cement concrete in prop. 1:3:6 (1 cement: 3 coarse sand: 6 coarse aggregate of 12.5 mm and down) and 15 mm thick wearing layer in cement concrete in prop. 1:1:2 (1 cement: 1 coarse sand: 2 coarse aggregate of size 10mm down) finished with a floating coat of neat cement finish using cement slurry for bond @ 2.75 kg. per square metre of floor area , wearing layer is to be laid in panels including curing etc. complete as directed.	100.00	Sq.m.				
4.2		3.8	Providing and fixing glass strips in joints of cement concrete flooring /Terrazzo flooring in all level						
		(a)	25 mm wide						
		(i)	4 mm thick	50.00	R.m.				
4.3		3.9	Cement plaster skirting with cement mortar in prop. 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement including rounding of junctions with floor.						
4.4		3.26	Providing polished ceramic wall tiles of Somany/ Orient/ Nitco/ Qutone make or equivalent of approved quality, size, shape and thickness not less than 8mm on walls and skirting over cement mortar bed 10 mm thick in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile (Choksey / Sika / Pidilite / Rouf) or white cement slurry mixed with approved pigment to match shade of tiles complete at all levels as specified and directed. (Cement plastering to be measured and paid separately).						
a )		3.26.2	Executive range-2 (Sizes 300mmx450mm and above)						
		(b)	Premium Range	570	Sq.m.				
b )		3.26.4	Executive range-4 (Sizes 300mm x 600mm and above)						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		(b)	Premium Range	55	Sq.m.				
4.5		3.27	Providing VITRIFIED floor tiles of Somany/ Orient/ Nitco/ Qutone make or equivalent of approved quality of specified size, shape and thickness not less than 18mm on floors, skirting, risers and treads of steps over 15 mm thick base of cement mortar in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile (Choksey/Sika/Pidilite/Rouf) / white cement slurry mixed with approved pigment to match shade of tiles, mixed with approved pigment to match the shade of the tiles, complete at all levels as specified and directed. (Cement plastering to be measured and paid separately). (Coloured pigment should be in conformity with colour of tiles and as approved and directed by the Department)						
		(b)	Premium Range	4065	Sq.m.				
4.6		3.28	Providing polished VITRIFIED wall tiles of Somany/ Orient/ Nitco/ Qutone make or equivalent of approved quality, size, shape and thickness not less than 8mm on walls and skirting over cement mortar bed 10 mm thick in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile (Choksey / Sika / Pidilite / Rouf) or white cement slurry mixed with approved pigment to match shade of tiles complete at all levels as specified and directed. (Cement plastering to be measured and paid separately).						
		(b)	Premium Range	405	Sq.m.				
			<b>KOTA STONE SLAB / SAND STONE FLOORING</b>						
4.7		3.31	Kota-stone slab flooring of 18 mm thick over 20mm thick base of cement plaster 1:6 (1 cement : 6 coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete.						
		(a)	Slab upto 0.4sq.m. size	100	Sqm				
4.8		3.32	Kota stone slab of 18 mm thick in riser of steps, skirting, dado and pillars laid with 10mm thick cement plaster 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs including rubbing and polishing complete.						
			<b>GRANITE FLOORING</b>						
4.9		3.39	Providing 18mm thick Granite slab on vertical face of pedestal laid over 10 mm thick base of cement mortar in prop. 1:3 (1 cement : 3 coarse sand ) jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete as directed with approved quality of shade.						
		(c)	Deluxe Quality	6075	Sq.m.				
4.10		3.42	Providing polished granite slab of approved quality, size, shape and thickness not less than 18 mm on floors, skirting, treads and risers of steps over cement mortar bed 15 mm thick in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile Choksey/Sika/Pidilite/Rouf) /white cement slurry mixed with approved pigment to match the shade of granite slab, complete at all levels as specified and directed. (Cement plastering to be measured and paid separately). (Coloured pigment should be in conformity with colour of slab and as approved and directed by the Department).						
		(c)	Deluxe Quality	695	Sq.m.				
4.11			Leather finish deleted						
			<b>ANTISKID TILES</b>						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
4.12		3.43	Providing Antiskid Tiles of approved quality size, shape not less than 8mm on floor, skirting over a cement mortar bed 15mm thick of 1:3 (1 cement: 3 coarse sand) approved make fix with Fix-A-Tile (Choksey/Sika/Pidilite/Rouf)/ white cement complete at all level as specified and directed.						
b )		3.43.2	<b>VITRIFIED ANTISKID TILES</b>						
		(b)	Premium range	100.00	Sq.m.				
4.15		3.53	Application of MYK Laticrete LATAPOXY SP-100 Stainfree Grout into the joints using joint spacer to provide required gap as directed in between tiles after surface & joints are thoroughly cleaned and free from dust, oil & other impurities & acid or alkali substance, fully dried, using standard SpectralOCK Pro Premium Grout grouting mixing techniques of MYK Laticrete LATAPOXY SP-100 & fill the joints complete as per specification of the manufacturing company	100.00	Sq.m.				
4.16		NSR-2	Extra for pre finished nosing to treads of steps of Granite stone.	735	Metre				
4.17		NSR-3	Extra for Granite stone flooring in treads of steps and risers using single length up to 2.00 metre .	695	Sq.m.				
4.18	dsr 2016 Cl. 8.12	NSR-4	Extra for flamed finish Granite stone flooring instead of polished granite stone flooring all complete as specified and as directed by the Engineer-in-Charge :	1310	Sq.m.				
4.19		NSR-5	LUXALON Aluminium Panel sun louvers: Supply of luxalon plain panel sun louvers manufactured by M/S Hunter douglas india pvt ltd or any other other approved agency of approved color white or any other consisting of panel 84 mm wide x 16 mm deep x 0.6 mm thick with rounded edges panel length up to 6 mtrs coil coated on a contineous paint line double baked and roll formed from enameled corrosion resistasnce Aluminium alloy M 3005 ( Al.Mg) for higher strength and good roll forming characteristics . Panel shall be clipped to baked enameled aluminium SL4 panel stringer of 33 mm wide and 96 mm deep x 0.95 mm thick and standred length of 5 mtrs made of double baked enameled aluminium alloy AA5050 (Al.mg) black with cutout to hold the panel in a module of 96 mm c/c at a distance of 1mtr.The carrier shall be fixed to a suitable structure by means of rigid fixing details. Paint finish 84R Panels shall have luxacoat exteroir paint or any other equivalent brand exteroir paint finish which will be of 3 layers.	1055	Sq.m.				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
4.20		NSR-6	Supply and fixing of Luxalon® screen panel cladding fixed system manufactured by M/s Hunter Douglas. The Screen panels of various sizes maxing to 900mm X 4200 mm as per design requirement shall be manufactured from high corrosion resistant aluminium alloy of 3.0mm thickness which shall be fixed to a suitable and rigid substructure. Screen panels shall have customized perforation as per architects design and is to be provided to suite the design Panels. Panels shall be coated on visible side with Exterior Architectural Coating in approved colour. The panels of required length and height shall be fixed to sub structure by means of screen panel guide clamps of 20 x 43x 2mm GI (contractor's scope). Panels shall be bending from all four sides and shall have extended flanges to accommodate clamps. Installer or Client shall provide sub frame made from Al/Steel/GI. The Panels shall be fixed to a suitable structure by means of fixing side extrusion fixed to the panel at appropriate centers to proprietary metal clamp as per the proprietary HDI design to a support system taking into account the relevant live loads and a dead load. There will be a provision for an expansion joint of 20mm between two adjacent panel ends. Installation shall be carried out as per manufacturer recommendation.	770	Sq.m.				
4.21		NSR-7	Supply of G-ext High Pressure Compact Laminates (HPL), Exterior Decorative Panels meeting European norm compliance of CE mark with Electron Beam Curing (EBC) having standard dimensions of 2800 x 1300 x 6mm or 3050 x 1300 x 6mm. The product to confirm to highest quality level meeting the following values / parameters:	735	Sq.m.				
4.22		NSR-8	Providing and fixing in position Stainless steel Grade 304 Sheets 1.62 mm (16 Swg) for wall lining in hairline finish including cost of SS framing with box section 40x20 mm and fixing with fasteneres complete as approved by Engineer - Incharge	95	kg				
4.23	4.9		Precasting and placing in position 125 mm dia Bollards 600 mm high of required shape including providing M.S. Pipe Sleeve 50 mm dia 300 mm long in the Bollard and M.S. Pipes 40 mm dia and 450mm long with 150x150x6mm M.S. plate welded at bottom and embedded 150mm in cement concrete 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size), including necessary excavation of size 250x250x450mm deep for the same in bitumen/ concrete pavement at specified spacing.	225	Each				
<b>FLOORING AND CLADDING WORK SUB HEAD TOTAL</b>									
<b>5.0 SUB HEAD-V :- MASONRY WORKS</b>									
5.1		4.2	Filling sunken floor with broken brick bats/ Stone aggregates and sand including compacting and supplying of materials complete as specified and directed for all levels.						
		(a)	Brick bats	105	cu.m.				
5.2		4.2.1	Extra cost for lifting of brickbats/Stone soling and sand for filling of sunk floor for each subsequent floors above the ground floor as directed and specified.	65	cu.m.				
5.3		4.3	Brick work in cement mortar with 1st class brick including racking out joints and curing complete in sub-structure upto plinth level including dewatering if necessary as directed.						
		(d)	In proportion 1:6 (1 cement : 6 sand)	125	cu.m.				
5.4		4.4	Brick work in cement mortar with 1st class brick including racking out joints and curing complete in super-structure above plinth level upto 1st floor level including dewatering if necessary as directed.						
		(d)	In proportion 1:6 (1 cement : 6 sand)	980	cu.m.				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
5.5		4.5	Extra over item no. 4.4 above for brick work in each subsequent floor or part thereof above 1st floor level.	1075	cu.m.				
5.6		4.6	Brick nogged wall with 1st class brick in cement mortar including racking out joints and curing complete as directed in super structure above plinth up to 1st floor level (protruding M.S rod/Tor steel of column to be embedded in cement mortar and will be measured and paid separately)						
		(a)	Half Brick (~112 mm) thick 1st class brick nogged wall						
		(ii)	In proportion 1:4 (1 cement : 4 sand)	75	sq.m.				
5.7		4.10	Extra for brick walling for each subsequent floor or part thereof above the 1st floor level						
		(a)	Half Brick (~112 mm) thick brick/ R.B wall over Item No. 4.6 - 4.9 above	235	sq.m.				
			<b>STONE MASONRY WORK</b>						
5.8		4.11	Stone masonry work in retaining wall, wing wall, abutment, foundation, steps, plinth etc. in cement mortar in prop 1:6 with levelling course of 1:6:12 with unsize stone / Mawthup both faces hammer dressed including bonding, providing face stone, through stone and centering including racking of joints, curing and supplying and all carriage of stone as directed.						
5.8.1		(a)	<b>Random Rubble Masonry</b>						
5.8.2		(b)	<b>Coursed Rubble Masonry</b>						
			<b>MASONRY WORK SUB HEAD TOTAL</b>						
<b>6.0</b>			<b>MARBLE AND GRANITE WORK</b>						
6.1	8.2		Providing and fixing 18mm 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 of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.						
	8.2.2		Granite of any colour and shade						
a)	8.2.2.1		Area of slab upto 0.50 sqm	40	Sq.m				
6.2	8.3		Extra for providing edge moulding to 18mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.						
	8.3.2		Granite work.	70	Meter				
6.3	8.4		Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	70	Meter				
6.4	8.5		Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	50	Each				
6.5	8.6		Mirror polishing on marble work / Granite work/ stone work where ever required to give high gloss finish complete.	40	Sq.m				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>7.0</b>			<b>SUB HEAD-VI :- FINISHING WORK</b>						
7.1		5.1	10 mm thick Cement plaster in single coat on fair side of brick/concrete walls for interior plastering up to 1st floor level including arises or rounded angles not exceeding 80mm girth and finished even and smooth including curing complete as directed.						
		b)	In cement mortar 1:4	12955	Sq.m.				
7.2		5.2	15 mm thick Cement plaster in single coat on rough side of single or half brick wall for interior plastering up to 1st floor level including arises, internal rounded angles, not exceeding 80mm girth and finished even and smooth including curing complete as directed.						
		b)	In cement mortar 1:4	3240	Sq.m.				
7.3		5.3	15 mm thick Cement plaster in single coat on fair side of single or half brick wall for interior plastering up to 1st floor level including arises, internal rounded angles, not exceeding 80mm girth and finished even and smooth including curing complete as directed.						
		b)	In cement mortar 1:4	3240	Sq.m.				
7.4		5.4	20 mm thick Cement plaster on rough side in two coats (backing coat 15 mm and finishing coat 5mm thick) on single or half brick walls for interior plastering up to 1st floor level including arises, internal rounded angles, chamfers and / or rounded angles not exceeding 80mm in girth and finished even and smooth including curing complete as directed.						
		b)	In cement mortar 1:4	2590	Sq.m.				
7.5		5.6	Extra over item no 5.1 to 5.5 for providing and mixing water proofing materials in cement mortar in prop as recommended by the manufacturer including curing complete as directed.						
		(a)	10 mm thick plaster						
		(ii)	In cement mortar 1:4	12955	Sq.m.				
7.6		(b)	15 mm thick plaster						
		(ii)	In cement mortar 1:4	3240	Sq.m.				
7.7		(c)	20 mm thick plaster						
		(ii)	In cement mortar 1:4	2590	Sq.m.				
7.8		5.7	Extra over item no 5.1 to 5.6 for plastering on ceiling and soffits of stairs up to 1st floor level (instead of plastering on walls) including curing complete as directed.	5925	Sq.m.				
7.9		5.8	Extra over item no 5.1 to 5.7 for interior plastering above 1st floor level for every addl. floor or part thereof including curing complete as directed.						
		b)	On two coat plaster	7420	Sq.m.				
7.10		5.9	Extra over item no 5.1 to 5.7 for exterior plastering up to a height of 1st floor level above ground level including curing complete as directed.						
		b)	On two coat plaster	2505	Sq.m.				
7.11		5.10	Extra over item no 5.1 to 5.7 for exterior plastering for every addl floor or part thereof beyond 1st floor level including curing complete as directed.						
		b)	On two coat plaster	595	Sq.m.				



Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
7.12		5.11	15 mm thick plain cement mortar bands in cement mortar 1:4 in width including curing complete as directed.						
		(a)	Upto 300 mm width						
		(i)	Sunk band	250	Sq.m.				
		(ii)	Raised band	250	Sq.m.				
7.13		(a)	Above 300 mm width						
		(i)	Sunk band	250	Sq.m.				
		(ii)	Raised band	250	Sq.m.				
7.14		5.18	Supplying and laying of permanent wall finish for interior and exterior walls with surface coating of Heritage Surface Texture of Bakelite Hylam Limited for all types of buildings at all levels as specified and directed by the department.						
		(f)	Flakes with Top coat (Code : HFRT)	930	Sq.m.				
		(h)	Fine Flakes with Top coat (Code : FFHT)	1240	Sq.m.				
		(i)	Granite Finish (Code : HFG)	1595	Sq.m.				
		(n)	Roller Coat (Application by Special Roller) (RCSR)	970	Sq.m.				
7.15		15.38	Providing two coats of Birla White Wall Care Putty (Water Resistant White Cement based putty for concrete/ mortar walls and ceiling both internal and external) after removing all loosely adhering material from the wall surface with the help of emery stone, putty blade or wire brush and moistening the wall with sufficient quantity of clean water as specified and directed by the department. (Total thickness of two coats is maximum 1.5mm)						
		(a)	For 1.5mm thick application	1595	Sq.m.				
		(b)	For 1.0mm thick application	9715	Sq.m.				
7.16		14.40	Wall painting (two coats) with acrylic emulsion paint approved brand and manufacture (Asian paint/ Berger paint/ICI paint/ J & N paint/ Nerolac) on new surface to give an even shade after thoroughly brushing the surfaces free from mortar droppings and other foreign matter and sand papered smooth.	12955	Sq.m.				
7.17		15.56	Finishing wall with two coats of waterproofing cement coatings of Unicem "Shakti" brand of required shade by thinning 1 part of paint with 1 part of water to give an even shade after thoroughly brooming the surfaces to remove all dirt and remains of loose powdered materials as specified and directed by the department.	5245	Sq.m.				
7.18		NSR-9	Providing and fixing 20 guage GI chicken wire mesh at all heights, to junctions of concrete and masonry, cleaning of surfaces with required nails etc. complete as directed by Engineer-in-charge.	585	sqm				
			<b>FINISHING WORK SUB HEAD TOTAL</b>						
8.0			<b>SUB HEAD-VII :- ROOFING &amp; FALSE CEILING</b>						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
8.1		6.8	Supplying, fitting, fixing M/F Suspended Ceiling with G.I. perimeter channels of size 0.55mm thick (having one flange of 20mm and another flange of 30mm and a web of 27mm) along perimeter of ceiling, screw fixed to brick wall/ partition with the help of nylon sleeves and screws at 610mm c/c; and suspending G.I. intermediate channels of size 45mm (0.9mm thick with two equal flanges of 15mm each) from the soffit at 1220mm c/c with ceiling angle of size 25mm x 10mm x 0.55mm fixed to soffit with G.I. cleat and steel expansion fasteners; Ceiling section of 0.55mm thickness having knurled web of 51.5mm and two equal flanges of 26mm each with lips of 10.5mm are to be fixed to the intermediate channel with the help of connecting clip and in direction perpendicular to the intermediate channel at 457mm c/c; fixing 9.5mm/ 12.5mm tapered edge Gypboard (conforming to IS:2095-1982) to ceiling section with 25mm long drywall screws at 230mm c/c. and boards to be joined by filling and finishing the tapered and square edges of the boards with jointing compound, joint paper tape and two coats of drywall topcoat suitable for Gypboard so as to have a flush look and painting where necessary (one coat primer and two coats of paint) complete at all levels as specified and directed. (For light fittings, providing opening for doors, window, ventilators, etc. cut out made with frame of perimeter channel supported suitably to be measured and paid separately where necessary).						
		(b)	12.5mm thick	500.00	Sq.m.				
8.2		6.41	Providing 10mm thick plaster of paris (Gypsum, Anhydrous) ceiling up to a height of 5m above floor level over 1st class Hollock / Bonsum / Diengrai/Sundi wood strips 25mm x 6mm with 10mm gap in between with rabbit wire mesh fixed to wooden frame (frame work to be measured and paid separately).						
		(a)	Flat surface	100.00	Sq.m.				
		(b)	Curved surface	100.00	Sq.m.				
8.4		(d)	Extra for sunk or raised mouldings , cornices in cement plaster using moulds as per drawings and design matching with elevations.	500	Sq.m.				
8.5		7.37	Providing Pre Painted Galvalume Sheet Roofing (PPGL) (Dyna roof/ Sathyam/ Century Wells/ Wonder Roof/ Dura Kolor make or equivalent) at all levels including fitting and fixing self drilling, self tapping screws complete (Roof trusses, purlins etc. to be measured and paid separately.)	660	Sq.m.				
8.6		7.38	Providing Pre Painted Galvalume Sheet (PPGL) accessories like Ridges / Valley / Gutter / Flashing (Dyna roof / Sathyam/ DuraKolor /Century Wells/Wonder Roof make or equivalent) at all levels including fitting and fixing self drilling, self tapping screws complete.						
		(a)	0.40 mm thick	170	Sq.m.				
8.7			Providing colour coated DURASHINE/TATA BLUESCOPE zinc-aluminium roof, wall and tile profile sheet accessories of DURASHINE/ TATA BLUESCOPE make or equivalent (total coating thickness =0.45mm) including fasteners class 2 SDS, fitting and fixing complete. (Roof trusses, purlins etc. to be measured and paid separately.)						
		(c)	Crimped End Curved Ridge	170	Sq.m.				
		(d)	Gutter / Flashings	70	Sq.m.				
		(e)	Plain sheet	75	Sq.m.				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
8.8	12.52		Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections ( galvanized @ 120 gsm/sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet, spaced at 1200mm center to center and cross "T" of size 24x25mm made of 0.30mm thick (minimum) sheet, 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm and size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, wherever, required, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x1.6 x mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.						
	12.52.2		GI Metal Ceiling Lay in perforated Tegular edge global white color tiles of size 595x595 mm and 0.5 mm thick with 8 mm drop; made of GI sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC (Noise Reduction Coefficient ) of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation, and backed with a black Glass fiber acoustical fleece.	255	sqm				
8.9		NSR-10	Providing & fixing trap door in the false ceiling using 19 mm thk commercial ply laminated with approved finish 1mm thick laminate with necessary 2nd Class teak frame work of size 2" x 1.5", Oak wood mouldings as per Architect's drawing, brass hinges, latches etc. complete in all respect as directed by Engineer-in-charge.	25	sqm				
			<b>Wooden Ceiling</b>						
8.10		NSR-11	LUXALON U-Baffle (50mm x 100mm) False Ceiling System in 150mm module Providing and fixing Luxalon® U Baffle Aluminium panel ceiling manufactured by M/s Hunter Douglas India Pvt. Ltd. or any other equivalent brand of approved woodgrain colour consisting of panel size 50 mm width X 100 mm deep using 0.6 mm thick, panel length upto 4 mtr, Coil Coated on a Continuous Paint Line, Double baked and roll formed from enamelled corrosion resistance Aluminium alloy AA 3005 (Al. Mg) for higher strength and good roll forming characteristics. Panels shall be clipped to a baked enamelled Aluminium carrier of 30 mm wide x 47 mm high x 0.5 mm thick, Black Colour coated, one leg of the carriers with cut outs to hold the panels in a module of 150 mm. Panel carrier shall be suspended by means of threaded rod at a distance of 1.8 mtr c/c. (Actual distance of threaded rod/carrier to be calculated based on the actual drawing) PAINT FINISH: Aluminium panels shall be chromatised for maximum bond between metal and paint enamelled twice under high temperature, Exposed side with a full primer and finish coat on a Continuous Paint Line.	3130	sqm				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
8.11		NSR-11A	Providing and Fixing PTFE Tensile Membrane and roof covering including complete structural / architectural design, and implementation at Site complete (Structural engineering, reaction loads to building, Membrane analysis, Fabric patterning , Structural steel engineering and shop drawings, Fabric and fabrication, Steel supply and fabrication, cables, Metal protection)	215	sqm				
8.12		7.33	<b>POLYCARBONATE TRANSPARENT SHEET ROOFING</b> Providing plain Polycarbonate transparent sheet roofing at all levels including supplying, fitting and fixing necessary self drilling, self tapping screws etc. complete as specified and directed. (Roof trusses, purlins etc. to be measured and paid separately.) 3.00 mm thick	400	Sqm				
			<b>ROOFING &amp; FALSE CEILING SUB HEAD TOTAL</b>						
<b>9.0</b>			<b>SUB HEAD-VIII :- WOOD AND PVC WORK</b>						
			<b>SPECIAL DOORS</b>						
9.13	21.18		Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	345	Sqm				
9.14		NSR-12	Providing and fixing 12 mm thick frameless toughened glass partitions of approved brand and manufacturer, including providing and fixing partitions at top & bottom with aluminum channel etc. all complete as per direction of Engineer-in-charge	1420	Sqm				
9.15		8.29	Providing and fixing flush door shutters solid core construction with frame of 1st class hard wood with cross band and face veneered ply wood face panels conforming to relevant I.S code including oxidised iron butt hinges (100mm x 75mm x 3.5mm) with necessary wood screws. ( a ) Decorative type face panels and block board core ( ii ) 35 mm thick.	95	Sqm				
9.16	9.23		Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)	95	Sqm				
9.17		12.18	Extra for providing 175 mm x 175 mm size Vision panel in door shutters including providing and fixing 4 mm thick clear glass and teak wood beading 12mm x 12mm , all along the glass edges on both sides including necessary screws etc. and painting / polishing of wooden beading complete as directed.						
9.18	9.40		Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :						
9.18.1	9.40.1		2nd class teak wood						
9.18.2	9.40.1.2		50 x 20 mm	185	Meter				
			<b>Stainless Steel Fittings</b>						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
9.19		12.4	Supplying, fitting, fixing Stainless Steel fittings of approved make, reasonably smooth, free from sharp edges and corners, flaws and other defects and with counter sunk holes for screws including necessary C.P. brass screws etc. complete. (bright natural matt & satin finished)						
		<b>(a)</b>	<b>Sliding Door Bolt</b>						
a )		(i)	300mm x 16mm	10	each				
b )		(ii)	250mm x 16mm	20	each				
		<b>(b)</b>	<b>Tower Bolt</b>						
a )		(i)	300mm x 10mm	15	each				
b )		(ii)	250mm x 10mm	65	each				
		<b>(e)</b>	<b>Butt hinge</b>						
a )		(i)	125mm x 50mm x 2.5mm	130	each				
b )		(ii)	100mm x 50mm x 2.5mm	25	each				
c )		(iii)	75mm x 50mm x 2.5mm	30	each				
9.20		12.8	Providing, fitting and fixing Sleek Door Closer (Godrej make) of size 215mm x 51mm x 45mm complete as specified and directed by the department.	45	each				
9.21		12.14	Providing, fitting and fixing Architectural Range Heavy Duty Floor Spring (Model D100 of Godrej make) of size 308mm x 108mm x40.5mm complete as specified and directed by the department.	220	each				
9.22			Providing and fixing approved brand and manufacturer SS 304 grade hardware's for Doors etc.						
a )		NSR-13	Providing and fixing approved brand and manufacture SS 304 grade Top Pivot fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	435	each				
b )		NSR-14	Providing and fixing approved brand and manufacture SS 304 grade Top & Bottom Patch fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	435	each				
c )		NSR-15	Providing and fixing approved brand and manufacture SS 304 grade D type 300mm Pull Handle with 32mm dia fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	5	pair				
d )		NSR-16	Providing and fixing approved brand and manufacture SS 304 grade Glass to Glass Lock Cylinder type with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	110	pair				
e )		NSR-17	Providing and fixing approved brand and manufacture SS 304 grade Floor spring (weight approx 100-120kgs) fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	220	each				
			<b>WOODEN</b>						
f )		NSR-18	Providing and fixing approved brand and manufacture SS 304 Lever Handle D-type fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	90	each				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
g )		NSR-19	Providing and fixing approved brand and manufacture SS 304 grade Mortice lock with key cylinder fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	40	each				
h )		NSR-20	Providing and fixing approved brand and manufacture SS 304 grade wall mounted door buffer fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	45	each				
i )		NSR-21	Providing and fixing approved brand and manufacture SS 304 grade Door Stopper - door mounted hanging type fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	45	each				
9.26.1	21.1.1		For fixed portion						
9.26.2	21.1.1.2		Powder coated aluminum (minimum thickness of powder coating 50 micron)	6070	kg				
9.27		NSR-22	Providing and fixing Single Glazing 5 mm thick toughened glass of the make equivalent to that mentioned in the technical specification complete in all respects as per direction of the Engineer-in-charge. (Required properties Solar factor 0.50, U-Value (W/sq.m-K) 5.6W /M2K, Visible light transmittance 0.56)	1080	Sq.m.				
9.28	9.161		Providing and fixing fire resistant door frame of section 50 x 60mm on horizontal side & 35 x 60 mm on vertical sides having built in rebate made out of 1.6 mm thick GI sheet ( Zinc coating not less than 120gm/m <sup>2</sup> ) suitable for mounting 120 min Fire Rated Glazed Door Shutters. The frame shall be filled with Mineral wool Insulation having density min 96Kg/m <sup>3</sup> . The frame will have a provision of G.I. Anchor fastners 14 nos ( 5 each on vertical style & 4 on horizontal style of size M10 x 80 ) suitable for fixing in the opening along with Factory made Template for SS Ball Bearing Hinges of Size 100x89x3mm for fixing of fire rated glazed shutter. The frame shall be finished with a approved fire resistant primer or Powder coating of not less than 30 micron in desired shade as per the directions of Engineer - in- charge . (Cost of SS ball bearing hinges is excluded).	125	metre				
9.29	9.162		Providing and fixing 60 mm thick glazed fire resistant door shutters of 120 min Fire Rating confirming to EN1634-1:1999, tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, top rail & side rail 60 mm x 60 mm wide and bottom rail of 110 mm x 60 mm made out of 1.6mm thick G.I. sheet (zinc coating not less than 120gm/m <sup>2</sup> ) duly filled mineral wool insulation having density min 96 kg/m <sup>3</sup> and fixing with necessary stainless steel ball bearing hinges of size 100x89x3mm of approved make, including applying a coat of approved fire resistant primer or powder coating not less than 30 micron etc all complete as per direction of Engineer-in-charge (panelling to be paid for seperately).	65	sqm				
9.30	9.164		Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/m <sup>2</sup> ) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per direction of Engineer-in-charge. The glass shall be clear, toughened, interlayered, non-wired fire resistant having 11 mm thickness of approved brand with 120						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
			minutes of fire resistance both integrity & radiation control (EW120) and minimum 15 min of insulation (EI15) and having a sound reduction of 37dB and LT of 86%. Glass shall be compliant to class 2(B)2 category of Impact Resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The maximum glazing size cannot be more than 1100 mm x 2200 mm (w x h) or 2.42 sq mts in total area. The test report for the complete system (Glazed Door or Partition) will be considered valid only if it contains the stamp and signature of the authorized signatory from the glass manufacturer. (Actual glass size is to be measured at site for payments).	65	sqm				
9.31	9.139		Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	20	each				
9.32		NSR-23	Providing and fixing of Noise Reduction doors consisting of Door frame made out of good quality hard wood , section size – 100 mm x 110 mm fitted with 'D' type rubber gasket to block noise leakage from gap and acoustic door shutter with minimum 60 mm thickness along with fire rating and smoke Intumescent seal strip of size 10mm x 4mm for 120 minutes fire rated and STC 37dB Tested by reputed Laboratory and having infill of 50mm thick resin bonded glasswool of 48 kg/cum density sandwiched by two 10mm thick approved quality marine grade ply and finished with 1 mm thick laminate of approved make, shade and colour and design on both sides. Further edges of shutter shall be provided with 6mm thick teak wood beading using exterior quality synthetic adhesive, headless GI nails, screws, beading finished with approved melamine polish etc. The ply shall be resistant to vermin, mould growth, minor impact, abrasion and short term water attack and with a smooth surface suitable to receive most forms of decoration. The door shall have acoustic seal in door rebates and drop dead seal at the bottom of the door including ironmongeries. HARDWARE :-The door assembly shall be fixed to the door frame with heavy duty hardware i.e. Geze/ Assa abloy/Dorma Make or equivalent make SS Hinge Size: 4"x 3"x 3mm , 600 mm SS door handle , SS Tower bolt ,Door closer , Panic Bar ,Panic trim etc. ACOUSTIC INSULATION: The Panels filled with Acoustic material Rock wool confirming to IS-8183 of 96 kg/m3 density, very good noise absorber for high, mid & low frequencies along with, 6 MM thick anti donning layer having Thermal Conductivity 0.037 @ 20 C as per EN ISO 8497 (DIN 52613) and 2 mm thick Sound Damping layer MTS 05-303 to achieve higher Sound STC as per site condition.	20	sqm				
9.33		NSR-24	<b>Toilet Cubical</b> Providing and fixing Toilet Cubicle (of following standard dimension which includes 600 mm door size width) made of heat, bacteria, water, chemical, scratch, impact and anti bacterial resistant 12 mm thick solid compact laminate panels Finish of the compact laminate should be raw silk which include doors, pilasters and intermediate panels finished with approved texture/shade as per the detail drawing and as per fire retardant BS-476/97 standard. This also includes providing and fixing in position necessary hardware made out of Stainless Steel (Grade 316) as per manufacturer's specifications and EIC instructions like (1) Door Knob, (2) Gravity Hinges, (3) Thumb turn lockset indicators, (4) Coat hooks, (5) U- Channels, (6) SS-Shoe Box Plate, (7) MS-Base Plate, (8) Rubber noise deafening tape, (9) Screws and wall Plugs.	300	sqm				
9.34		NSR-25	Mealamine polishing on door windows by preparing the surface applying putty base course. prepare the surface smooth by sand papering and then applying mealamine polish with air compressor. Two or more coats on new works including a coat of wood filler.	95	sqm				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
9.35		NSR-26	Providing and fixing of 6mm thick lacquer glass SGG Planilaque glass of approved color by architect/ Client with SGG Planifix silicon on perfectly leveled water proof non-conventional plywood (preferably marine plywood) of minimum 12mm thickness mounted on the RCC wall/any other structure. The SGG Planilaque lacquered glass to be of 6mm thick highly durable, humid resistance, poly urethane lacquer glass. The Planilaque glass should be manufactured by industrial curtain coating process. It should meet quality standards as per BS EN 1036 1999 & confirms to PERSOZ hardness test of at least 220 oscillations. The substrate of the glass should conform to Standard BS EN 572 1995 parts 1 and 2: Glass in Building – Basic soda lime silicate glass products. Planilaque lacquered glass to be manufactured to right specifications, relating to consistency of color, opacity and homogeneity throughout production campaigns and also to the ageing properties, mechanical resistance, and resistance to humidity and to chemical agents of the lacquer. The color of the lacquer should remain stable when exposed to normal levels of ultra-violet light in interior applications.	25	sqm				
			<b>WOOD WORK SUB HEAD TOTAL</b>						
<b>10.0</b>			<b>SUB HEAD-IX :- STEEL WORK</b>						
10.1		11.6	Providing and fixing in position collapsible M.S. shutters with vertical channels 20mmx10mmx2mm braced with flat iron diagonals 20mmx5mm size with top and bottom rails of T-iron 40mmx40mmx6mm with 38mm dia steel pulleys complete with bolts and nuts, locking arrangements, stoppers, handles including applying a priming coat of red lead paint.	10	Sq.m.				
10.2		11.7 (a)	Providing and fixing rolling shutters of approved make made of 80mm wide M.S. laths interlocked together through their entire length and jointed together at the ends by end-locks mounted on specially designed pipe shaft with bracket plates, guide channels and arrangements for inside and outside locking with push-pull operation complete including cost of wire, spring and hood cover for the shutters.	10	Sq.m.				
10.3		14.2	Providing, fitting and fixing M.S. grill of required pattern for windows/ clerestory windows/ opening/ railing with M.S. flats at required spacing in frame all round, square or round M.S. bars with round headed bolts and nuts or screws.						
		(a)	Plain grill						
		(i)	Fixed to wooden frames	2980	Kg.				
10.4		17.1	Structural steel work in single sections including cutting, hoisting, fixing in position and applying a priming coat of red lead paint (up to 4.6m height) from plinth level including drilling holes, supplying, fitting and fixing with bolts and nuts or welding, if necessary as directed.						
		(c)	In M.S. angles, channels, Tees etc.	35	Qntl.				
10.5		17.2	Steel work riveted and/ or bolted/ riveted in built up sections, frame work including cutting, hoisting, fixing in position and applying a priming coat of red- lead paint up to 4.6m height above plinth including drilling holes, supplying, fitting and fixing with bolts and nuts or welding, if necessary as directed.						
		(c)	In trusses and trussed purlins up to 25m span and 15m overall height.	70	Qntl.				
10.6		17.3	Steel work welded in built up sections, framed work including cutting, hoisting and fixing in positions and applying priming coat of red-lead paint including drilling holes, supplying, fitting and fixing with bolts and nuts or welding, if necessary as directed.						
		(b)	In trusses and trussed purlins up to 25m span and 15m overall height.	70	Qntl.				



Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
10.7		NSR-27	Extra additional height for Tapered Roof	1425	Qntl.				
10.8		17.6	Supplying fitting and fixing M.S. cattle trap fabricated, welded, mitred and jointed as per relevant IS code with ISMB 250 joist spaced not more than 1800mm apart and ISA 65 x 65 x 6 spaced not more than 200mm apart and fixing the same over RCC member / Brick wall complete as specified and directed.	10	Sq.m.				
10.9		NSR-28	Fabrication, supply & installation of top/floor mounted SS 316 grade <b>glass railing</b> in satin finish made of SS top rail $\Phi$ 50x1.5mm thick (OZRF-TB-02-50 or equivalent) mounted on SS round baluster of $\Phi$ 50x1.5mm thick (OZBF-CM-44-GH or equivalent) with SS modular neck to hold the top rail, The total height of the installed rail including top rail will be 900mm from finish floor level. Further the baluster will infill with 13.52mm thick PVB Laminated (6mm clear tempered +1.52mm PVB+6mm clear Tempered) glass of height 650mm & length as per layout connected to the baluster with 2nos. of CNC made modular glass holder, The baluster will be top mounted with SS 304 grade plate of $\Phi$ 100x6mm thick fixed on the floor with M8 GI stud anchor with SS nut cap. all complete as per the Architectural drawings and as directed by the Engineer-in-Charge.	625	Meter				
10.10		17.8	Providing and fixing M.S. tube hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.	1190	Kg				
			<b>STEEL WORK SUB HEAD TOTAL</b>						
<b>11.0</b>			<b>SUB HEAD - X - WATER PROOFING WORK</b>						
11.1		22.1	Supplying, mixing, laying and applying the following waterproofing systems over Raft slabs, Roof slabs, Terraces etc. including curing complete as specified and directed by the Department at all levels.: (i) 1mm thick single coat of Master Crete M-81 of Choksey Chemicals /Dr. Sealkit Sealcrete (Asian Chemicals)/ mixed with cement in the ratio 1:2 as a prime coat. (ii) 3mm thick Polymer modified mortar -Cement sand mortar (in prop 1:3) mixed with Master Crete M-81/Dr. Sealkit Sealcrete (Asian Chemicals) @ 15% by weight of cement. (iii) 1mm thick coat of Master Crete M-81 /Dr. Sealkit Sealcrete (Asian Chemicals) mixed with cement in the ratio 1:2 as final coat.						
		(b)	Using RHEOMIX 131 OF BASF	2645	Sq.m.				
11.2		22.4	Providing, supplying, mixing and chamfering the edges along joint of wall/ parapet wall and raft/ roof slab having chamfered dimension of 150mm x 150mm with cement sand mortar (prop.1:4) mixed with Master Proof IWP-1 of Choksey Chemicals /Dr. Sealkit No. 1 of (Asian Chemicals)/ RHEOMAC 707 of BASF@ 0.2% by weight of cement over a primer coat on the area to be chamfered with a combination of 100% acrylic Polymer Master Crete M-81/Dr. Sealkit Sealcrete (Asian Chemicals)/ RHEOMAC 115 of BASF of Choksey Chemicals and cement in the ratio 1:2 to be applied by brush as specified & directed by the Department complete.	100.00	Sq.m.				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
11.3		22.11	Providing and applying over sunken slab etc., two coats of waterproofing slurry prepared with neat cement, water and modified Styrene Butadiene Rubber based polymer like Sika Latex of Sika India Ltd./Dr. Sealkit Masterbond Latex (Asian Chemicals)/ RHEOMIX 141 by brush after proper surface preparation (surface preparation including thorough cleaning of surface to be measured and paid separately) as specified & directed by the Department complete.	420	Sq.m.				
11.4		22.12	Supplying, providing, mixing and laying of concrete screed of average 20mm thick or as per drawings/ requirements in proportion 1:2:4 (1cement : 2fine aggregate : 4coarse aggregate) (by volume) with 10mm and down well graded aggregates and admixed with a waterproofing plasticizer like Plastocrete Plus of Sika India Ltd./Dr. Sealkit LW Super (Asian Chemicals) /Rheomac 730 of BASF@ 0.2% by weight of cement and thereafter scoring the top surface of the concrete screed @ 200mm c/c as specified and directed by the Department.	280	Sq.m.				
11.5		22.13	15mm thick plastering of the interior surface of concrete water tanks with cement mortar in prop 1:4 admixed with modified Styrene Butadiene Rubber based polymer like Sika Latex of Sika India Ltd./Dr. Sealkit Masterbond Latex (Asian Chemicals)/Rheomix 141 of BASF @ 200gms per bag of cement as specified and directed by the department complete.	420	Sq.m.				
11.6		31.7	Providing and fixing thermal insulation of roof slab/ ceiling (under deck insulation) with Resin bonded Rockwool of Lloyd Insulations (India) make or equivalent, of 50mm thick conforming to IS-8183 with density of 48kg/cum, wrapped in 200G virgin polythene bags fixed to plastered surface under deck of roof slab with metallic cleats (50mm x 50mm x 3mm) @ 60cm c/c and wire mesh of 12.5mm x 24G wire mesh, all complete as per specification and as directed.	660	Sq.m.				
<b>WATER PROOFING WORK SUB HEAD TOTAL</b>									
<b>12.0</b>	<b>SUB HEAD-XI :- ROAD WORKS :</b>								
12.1	16.1		Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres.	4400	sqm				
12.2	16.2		Extra for compaction of earth work in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (proctor density).	4180	cum				
12.3		4.1	Providing brick soling in foundation and under floor with stone/ best quality picked jhama brick, sand packed and laid to level and in panel after preparing the subgrade as directed including all labour and materials and if necessary dewatering, complete.	4400	sq.m.				
		( d )	Stone soling of thickness 150mm.						
12.4		NSR-30	Providing and laying 400 micron thick PVC Sheet on WBM Surface complete as per direction of engineer-in-charge.	4400	sqm				
12.5	16.75		Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately).	660	cum				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
			(Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).						
			<b>PAINTING ROAD / RUNWAY MARKING</b>						
12.6	16.47		Painting runway/taxi track/apron marking with adequate no. of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete						
	16.47.1		New work (Two or more coats)	880	sqm				
12.10	16.69		Providing and laying at or near ground level factory made kerb stone of M-25 grade cement in position to the required line , level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) including making joints with or without grooves (thickness of joints except sharp curve shall not be more than 5mm) including making drainage opening wherever required complete etc. as per direction of engineer-in-charge (length of finished kerb edging shall be measured for payment).(Precast C.C. kerb stone shall be approved by engineer-in-charge).	25	cum				
			<b>ROAD WORKS SUB HEAD TOTAL</b>						
			<b>TOTAL CIVIL WORKS</b>						

PROPOSED CONSTRUCTION OF POLO MARKET, SHILLONG, MEGHALAYA								
BOUNDARY WALL, GUARD ROOM AND ROAD WORKS, EXTERNAL DEVELOPMENT								
BILL OF QUANTITY								
DSR 2016	MPWD 2016 Khasi Hills	Description	Qty	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>1.0</b>		<b>SUB HEAD-I :- EARTH WORKS</b>						
	1.1	Earth work in excavation upto a depth of 2m below the existing ground level for foundation trenches of foundations, footings of column/ walls, retaining walls, septic tank etc. including bailing out water where necessary and removal of surplus earth with all lead and lifts as directed and specified for the following classification of soils.						
	(a)	In ordinary soil	650	cum				
	(b)	In hard/ dense soil	325	cum				
	(c)	In soft or laminated rock or medium shale	325	cum				
	1.4	Earthwork in filling including necessary carriage, watering, ramming etc. complete as directed and specified.						
	1.4.1 (b)	With available excavated earth including breaking of clods, consolidating each layer by ramming and watering with all lead and lifts.	1305	cum				
	1.4.1	Earth/ Sand filling in plinth in layers not exceeding 150mm thick						
	(a)	With earth/stone dust obtained by carriage upto 8 km	5	cum				
		<b>Total Carried to Summary</b>						
		<b>SUB HEAD-II :- CONCRETE WORKS</b>						
	2.1	Plain cement concrete works with coarse aggregate of sizes 13mm to 32mm in foundation bed for footing steps, walls, brick works etc. as directed and specified including dewatering if necessary, and curing complete (shuttering where necessary shall be measured and paid separately).						
	(b)	In prop. 1:4:8 (1 cement:4 coarse sand : 8 coarse agg. by volume (using mixture machine)	225	cum				
	4.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets etc. up to floor five level, excluding the cost of centering, shuttering and finishing :						
	4.2.3	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	10	cum				
		<b>Total Carried to Summary</b>						
<b>3.0</b>		<b>SUB HEAD-III :- RCC WORK</b>						
	2.6	Providing and laying Concrete in Reinforced Cement Concrete Works Using Batching Plant/ RMC/ Truck mounted batching plant including Transit Mixer and Concrete Pump with coarse sand & 20mm down graded stone aggregate including dewatering if necessary, and curing complete with all necessary laboratory tests etc. but excluding cost of form work and reinforcement for reinforced cement concrete work (form work and reinforcement will be measured and paid separately). (Without using admixture, plasticiser)						
	(c)	<b>RCC Grade M25</b>	150	cum				
	29.1	Extra for providing and mixing normal Plasticizer Master Plast PL-1 of Choksey Chemicals /Dr. Sealkit Normal Plast (Asian Chemicals)/ RHEOMAC 707 of BASF @ 0.3% by weight of cement in concreting RCC structures as specified and directed by the Department complete at all levels.	150	cum				
	(c)	<b>M-25grade.</b>						

DSR 2016	MPWD 2016 Khasi Hills	Description	Qty	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
		<b>FORM WORK</b>						
	2.10	Providing form work of ordinary timber planking of thickness not less than 25mm and removal of the same for concrete members so as to give a rough finish including centering, shuttering, strutting and propping etc., for height of propping and centering of supporting floor to the soffit of the concrete member not exceeding 4.0M as specified for the following items:						
	a	Foundation, footings, bases of columns, pile cap, raft and mass concrete works etc.	195	sqm				
	c	Columns, Pillars, Posts & Strut						
		Square, Rectangular, polygonal in plan or any shape like Tee/L etc. having plane vertical face	440	sqm				
	(d)	Sides and Soffits of Beams, beam haunchings, cantilever girders, bressumers, lintels and horizontal ties For depth not exceeding 1.0M	195	sqm				
	(e)	Flat Surfaces such as soffits of suspended floors, roofs, landings, cantilever labs, chajjas, balconies and the like.	5	sqm				
		<b>STEEL REINFORCEMENT</b>						
	2.9	Supplying, fitting and fixing in position reinforcement bars upto 1st floor level, conforming to relevant I.S. Code for R.C.C. work/ R.B. walling including straightening, cleaning, cutting and bending to proper shapes and length as per details, supplying and binding with 20G annealed black wire and placing in position with proper blocks, supports, chairs, spacers etc. complete. (Rates inclusive of all wastage, lappage, hooks, chairs, anchors etc. and no measurements for the same is required)						
	a)	From Primary Sources like TATA/ SAIL/ ESSAR/ JINDAL/ SHYAM/ RINL						
	(ii)	Super Ductile (SD) TMT reinforcement bars	600	Qntl				
		<b>Total Carried to Summary</b>						
<b>4.0</b>		<b>SUB HEAD - IV - STEEL WORK</b>						
	14.2	Providing, fitting and fixing M.S. grill of required pattern for windows/ clerestory windows/ opening/ railing with M.S. flats at required spacing in frame all round, square or round M.S. bars with round headed bolts and nuts or screws.						
	b	Ornamental grill						
	ii	Fixed to steel frames	4140	kg				
	18.9	Supplying, fitting and fixing double leaf heavy duty iron gate, frame made from 50mm x 50 mm x 6mm M.S. flat iron with another horizontal flat at the middle, 20mm dia M.S. bars at 200mm apart from bottom flat to top flat and 20 mm dia M.S. bars at 200mm apart from bottom flat to middle flat including drilling, welding etc. complete. All vertical bars are to be protruded at least 100mm above the middle and top flat is to be flattened and pointed as directed. Necessary locking arrangement on both faces, arrangement for temporary closing the gate and 2 nos. ( minimum) strong iron hinges of M.S bars and flat of same sizes on each leaf to be embedded in C.C brick pillars as necessary including a red oxide painting to all iron works as directed and specified. (Separate payment will be made for posts).	5	Qntl.				
		<b>Total Carried to Summary</b>						
<b>5.0</b>		<b>SUB HEAD-V :- BRICK WORK</b>						
	4.3	Brick work in cement mortar with 1st class brick including racking out joints and curing complete in sub-structure upto plinth level including dewatering if necessary as directed.						
	(d)	In proportion 1:6 (1 cement : 6 sand)	120	cu.m.				
		<b>AUTOCLAVE AERATED CONCRETE BLOCK</b>						
	4.16	Autoclave Aerated Concrete Block work using AAC block conforming to IS-2185 (Part-III) in cement mortar in prop 1:5 (1 cement: 5 sand) including racking out joints and curing complete as per specification and as directed.						
	(b)	In superstructure above plinth level up to 1st floor level.						
	(iv)	AAC Blocks of size 600mm x 200mm x 200mm	170	cum				
		<b>Total Carried to Summary</b>						
<b>6.0</b>		<b>SUB HEAD - VI - FINISHING WORKS</b>						
	5.1	10 mm thick Cement plaster in single coat on fair side of brick/concrete walls for interior plastering up to 1st floor level including arises or rounded angles not exceeding 80mm girth and finished even and smooth including curing complete as directed.						
	b)	In cement mortar 1:4	730	sqm				
	5.18	Supplying and laying of permanent wall finish for interior and exterior walls with surface coating of Heritage Surface Texture of Bakelite Hylam Limited for all types of buildings at all levels as specified and directed by the department.						
	(f)	Flakes with Top coat (Code : HFRT)	730	sqm				

DSR 2016	MPWD 2016 Khasi Hills	Description	Qty	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
	15.67	Applying primary coat over new steel and other metal surface over 100mm in width or girth with ready mixed "red-lead/ red oxide" primer after preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign matter and scoured with wire brushes, fine steels, wood scrapers and sand paper.	415	sqm				
	15.69	Painting two coats (excluding priming coat) on new steel and other metal surface with enamel paint of approved brand and manufacture(Asian paint/ Berger paint/ ICI paint/ J & N paint/ Nerolac) to give an even shade including cleaning the surface of all dirt, dust and other foreign matter.						
	a (ii)	High gloss (Asian paint/ Berger paint/ ICI paint/ J & N paint/ Nerolac).	415	sqm				
	NSR-1	Providing and fixing 18mm thick Granite stone work for wall lining upto 10 m height in cement mortar 1:3 (1cement : 3 coarse sand) including pointing with white cement mortar with an admixture of pigment to match the granite shade complete as per direction of Engineer-in-charge.	765	sqm				
	3.9	Cement plaster skirting with cement mortar in prop. 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement including rounding of junctions with floor.						
		15 mm thick.	170	sqm				
		<b>Total Carried to Summary</b>						
<b>7.0</b>		<b>SUB HEAD-VII :- WOOD AND PVC WORK</b>						
	8.29	Providing and fixing flush door shutters solid core construction with frame of 1st class hard wood with cross band and face veneered ply wood face panels conforming to relevant I.S code including oxidised iron butt hinges (100mm x 75mm x 3.5mm) with necessary wood screws.						
	a	Decorative type face panels and block board core						
	i	35 mm thick.	5	sqm				
	12.18	Extra for providing 175 mm x 175 mm size Vision panel in door shutters including providing and fixing 4 mm thick clear glass and teak wood beading 12mm x 12mm , all along the glass edges on both sides including necessary screws etc. and painting / polishing of wooden beading complete as directed.						
	a	square.	5	sqm				
	12.4	Supplying, fitting, fixing Stainless Steel fittings of approved make, reasonably smooth, free from sharp edges and corners, flaws and other defects and with counter sunk holes for screws including necessary C.P. brass screws etc. complete. (bright natural matt & satin finished)						
	(b)	<b>Tower Bolt</b>						
	(i)	300mm x 10mm	5	each				
	(ii)	250mm x 10mm	10	each				
	NSR-2	Providing and fixing approved brand and manufacture SS 304 grade D type 300mm Pull Handle with 32mm dia fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	10	each				
	8.25	Providing, fitting and fixing fully glazed window without intermediate sash bars including oxidised M.S butt hinges (75mm x 60mm x 3.15mm) 2nos. on each leaf and 3nos. On single leaf (glass panes to be measured and paid separately)						
	(a)	With Teak wood / Sissu wood.						
	(i)	40 mm thick.	2	Sq.m				
		<b>WOOD AND PVC WORK SUB HEAD TOTAL</b>						

DSR 2016	MPWD 2016 Khasi Hills	Description	Qty	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
8.0		<b>SUB HEAD-VIII :- FLOORING</b>						
	3.27	Providing VITRIFIED floor tiles of Somany/ Orient/ Nitco/ Qutone make or equivalent of approved quality of specified size, shape and thickness not less than 18mm on floors, skirting, risers and treads of steps over 15 mm thick base of cement mortar in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile (Choksey/Sika/Pidilite/Rouf) / white cement slurry mixed with approved pigment to match shade of tiles, mixed with approved pigment to match the shade of the tiles, complete at all levels as specified and directed. (Cement plastering to be measured and paid separately). (Coloured pigment should be in conformity with colour of tiles and as approved and directed by the Department)						
	(b)	Premium Range	30	sqm				
	3.28	Providing polished VITRIFIED wall tiles of Somany/ Orient/ Nitco/ Qutone make or equivalent of approved quality, size, shape and thickness not less than 8mm on walls and skirting over cement mortar bed 10 mm thick in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile (Choksey / Sika / Pidilite / Rouf) or white cement slurry mixed with approved pigment to match shade of tiles complete at all levels as specified and directed. (Cement plastering to be measured and paid separately).						
	(b)	Premium Range	5	sqm				
	3.42	Providing polished granite slab of approved quality, size, shape and thickness not less than 18 mm on floors, skirting, treads and risers of steps over cement mortar bed 15 mm thick in prop. 1:3 (1 cement : 3 coarse sand ) including cutting where necessary finished with flush pointing with Fix-A-Tile Choksey/Sika/Pidilite/Rouf) /white cement slurry mixed with approved pigment to match the shade of granite slab, complete at all levels as specified and directed. (Cement plastering to be measured and paid separately). (Coloured pigment should be in conformity with colour of slab and as approved and directed by the Department).						
	(c)	Deluxe Quality	625	sqm				
	NSR -4	Extra for Leather finish granite instead of polished Granite	625	sqm				
		<b>FLOORING SUB HEAD TOTAL</b>						
9.0		<b>SUB HEAD-IX :- ROOFING &amp; WATER PROOFING</b>						
	22.9	Providing, supplying, mixing and coving the edges along joint of parapet wall & roof slab/ chajja & exterior wall/ walls & raft slabs etc. with cement sand mortar (prop.1:4) mixed with mortar modifier cum bonding agent Nitobond SBR of Fosroc Chemicals/Rheomix 141 of BASF/Dr. Sealkit Masterbond Latex (Asian Chemicals) @ 2-3Ltrs per bag of cement as specified & directed by the Department complete.	30	Rmt				
		Using RHEOMIX 131 OF BASF	30	sqm				
		<b>ROOFING &amp; WATER PROOFING WORK SUB HEAD TOTAL</b>						

DSR 2016	MPWD 2016 Khasi Hills	Description	Qty	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
<b>10.0</b>		<b>SUB HEAD-X :- ROAD WORKS :</b>						
16.1		Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres.	1035	sqm				
16.2		Extra for compaction of earth work in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (proctor density).	985	cum				
	( d )	Stone soling of thickness 150mm	1035	sq.m.				
	NSR-5	Providing and laying 400 micron thick PVC Sheet on WBM Surface complete as per direction of engineer-in-charge.	1035	sqm				
16.75		Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately).	155	cum				
		(Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).						
		<b>PAINTING ROAD / RUNWAY MARKING</b>						
16.47		Painting runway/taxi track/apron marking with adequate no. of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete						
16.47.1		New work (Two or more coats)	155	sqm				
		<b>HIGH DENSITY CONCRETE TILES</b>						
		<b>PAVERS TILES</b>						
16.92		Providing and fixing 10x10 x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in-charge.	105	sqm				
	3.55	Providing, Supplying, fitting, fixing and laying of dressed stone block wallingand tile slab (Cherra/local stoneblock) laid on 25mm thick base incement mortar 1:3 and jointed with grey cement slurry including clearingrubbing etc. complete as directed.						
16.69		Providing and laying at or near ground level factory made kerb stone of M-25 grade cement in position to the required line , level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) including making joints with or without grooves (thickness of joints except sharp curve shall not be more than 5mm) including making drainage opening wherever required complete etc. as per direction of engineer-in-charge (length of finished kerb edging shall be measured for payment).(Precast C.C. kerb stone shall be approved by engineer-in-charge).	5	cum				
23.9		Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineerin-charge.	110	each				
		<b>ROAD WORKS SUB HEAD TOTAL</b>						



## HORTICULTURE & LANDSCAPING WORK

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1	1.0		<b>HORTICULTURE &amp; LANDSCAPING WORK</b>						
1.1	2.1		Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly leveling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or / and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	500.00	cum				
1.2	2.4		Supplying and stacking at site dump manure from approved source, including carriage upto 5 km complete (manure measured in stacks will be reduced by 8% for payment)						
1.2.1	2.4.1		Screened through sieve of I.S. designation 20 mm	40.00	cum				
1.2.2	2.4.2		Screened through sieve of I.S. designation 16 mm	40.00	cum				
1.2.3	2.4.3		Screened through sieve of I.S. designation 4.75 mm	40.00	cum				
1.3	2.7		Fine dressing of the ground	835.00	Sqm				
1.4	2.8		Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately).	120.00	cum				
1.5	2.9		Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	125.00	cum				
1.6	2.10		Grassing with selection No. 1 grass including watering and maintenance of the lawn for 60 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and earth shall be paid for separately).						
1.7	2.10.1		In rows 5 cm apart in both directions	835.00	sqm				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.8	2.13		Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately)	500.00	cum				
1.9	2.14		Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :						
1.9.1	2.14.1		Holes 1.2 m dia and 1.2 m deep	25.00	each				
1.9.2	2.14.2		Holes 90 cm dia, and 90 cm deep.	25.00	each				
1.10	2.28		Preparation of mounds of various size and shape by available excavated / supplied earth in layers not exceeding 20 cm in depth, breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.	50.00	cum				
1.11	2.30		Providing Square Cement Concrete pots of specified size, cast with cement concrete of nominal mix 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 6 mm nominal size), reinforced with 7 Nos ( 3 nos horizontal & 4 nos vertical " U " shape) M.S. wires of 3.5 mm dia as per design, including required frame work, finishing with cement punning on exposed surface, curing for specified period and stacking in required rows & height, all complete as per direction of Officer-in-charge.						
1.11.1	2.30.1		Top inner width 35 cm, outer bottom width 25 cm, total height 35 cm and wall thickness 25.4 mm	25.00	each				

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.12	2.30		Providing Square Cement Concrete pots of specified size, cast with cement concrete of nominal mix 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 6 mm nominal size), reinforced with 7 Nos ( 3 nos horizontal & 4 nos vertical " U " shape) M.S. wires of 3.5 mm dia as per design, including required frame work, finishing with cement punning on exposed surface, curing for specified period and stacking in required rows & height, all complete as per direction of Officer-in-charge.						
1.12.1	2.30.1		Top inner width 35 cm, outer bottom width 25 cm, total height 35 cm and wall thickness 25.4 mm	25.00	each				
1.13			Providing and fixing M. S. tree guard 50 cm square in plan, height 1.40 metre above ground level and 0.50 metre below ground level. The vertical members shall consist of four nos of angle iron of size 25x25x5 mm 1.9 m long, one at each corner and 8 nos flat iron of size 25x5 mm 1.4 m long. The vertical members shall be welded to 4 nos 25x6 mm M. S. flats placed horizontally around the vertical member of the cage. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered CPWD / PWD/ any other approved name. The tree guard shall be fixed to the ground by making suitable holes and by embedding four corners leg in the ground, including refilling the earth , compaction etc. complete. The tree guard shall be painted with two coats of paint of approved brand and manufacture over a coat of primer, complete in all respect.	25.00	each				
1.14	2.15		Half brick circular tree guard in bricks, internal diameter 1.25 metre and height 1.2 metre above ground and 0.20 m below ground, bottom two courses laid dry and top three courses in cement mortar 1:6 (1 cement : 6 fine sand) and the intermediate courses being in dry honey comb masonry as per design complete:						
1.14.1	2.15.1		With common burnt clay F.P.S. (non modular) bricks of class designation 5	25.00	each				
1.15			<b>Supply &amp; Planting best quality trees inclusive of cultivation of trees bead to required depth. All trees / plants to be approved before planting including watering &amp; maintenance for 180 days.</b>						
	a)		Seasonal plants						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.15.1	4.4		Providing and Displaying plants Antirrhinum Hybrid dwarf variety, specimen (8-10 plants) with fresh & healthy foliage in full bloom well developed in 35 cm Earthen Tray/Challi Pot and as per direction of the officer-in-charge.	5.00	each				
1.15.2	4.10		Providing and Displaying plants Calceolaria hybrid variety in full bloom well developed with fresh & healthy foliage in 20 cm Earthen Pot/Plastic Pot as per direction of the officer-in-charge	5.00	each				
1.15.3	4.17		Providing and Displaying plants Cineraria long 45 to 60 cm ht., 8 to 10 branch with full bloom specimen plant with green painted stacking in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	5.00	each				
1.15.4	4.37		Providing and Displaying plants Marigold jaffri orange/yellow/Russet colour well developed with fresh & healthy foliage with 40 to 50 flowers in bloom specimen plant 60 to 75 cm ht in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	5.00	each				
1.15.5	4.61		Providing and Displaying plants Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen plants type with full bloom well developed in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	5.00	each				
			SUMMER & RAINY SEASONAL						
1.15.6	4.71		Providing and Displaying plants Celosia well developed fresh & healthy 20 to 25 cm ht. (attractive) multi branching at blooming stage in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	5.00	each				
1.15.7	4.72		Providing and Displaying plants Cladium Hybrid variety 3 to 4 plants in a pot well developed with fresh & healthy foliage 30 to 45 cm ht. in different colour 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-incharge	5.00	each				
			ORNAMENTAL PLANTS						

Sl.No	DSR 2016	MPWD 2016 Khasi Hills	Description	Qty.	Unit	Rate (Rupees in figures)	Rate (Rupees in words)	Amount (Rupees in figures)	Amount (Rupees in words)
1.15.8	5.12		Providing and Displaying Bougainvillea named variety, Sobhra, Thima, Marry palmar, Cherry Blossom etc. well developed with fresh & healthy bushy plant in full bloom 75 to 90 cm ht. in 40 cm Cement Pot as per direction of the officer-in-charge	5.00	each				
1.15.9	5.11		Providing and Displaying Bismarkia Palm plant 115 to 180 cm ht., well developed 12 and above good color fresh and healthy leaves in 40 cm Cement Pot as per direction of the officer-in-charge.	5.00	each				
1.15.10	5.9		Providing and Displaying Bamboo Buddha Valley with fresh & healthy 5 to 6 suckers 1.80 m to 2.10m ht umbrella type plant well developed in 50 cm Cement Pot as per direction of the officer-in-charge.	5.00	each				
			<b>HORTICULTURE &amp; LANDSCAPING SUB HEAD TOTAL</b>						

## PROPOSED CONSTRUCTION OF POLO MARKET, SHILLONG, MEGHALAYA

## MAIN SUMMARY

Sl.No.	Description	Total Amount (Rupees in figures)	Total Amount (Rupees in words)
1	CIVIL/INTERIOR WORKS		
2	EXTERNAL DEVELOPMENT		
3	HORTICULTURE WORKS		
4	PLUMBING WORKS		
5	FIRE FIGHTING WORKS		
6	ELECTRICAL WORKS		
7	LIFT WORK		
	<b>GRAND TOTAL</b>		

Note: In case of any deviation in the nomenclature, description as per the prevalent SOR MPWD & DSR shall prevail.