

CONSTRUCTION OF SBI AO BUILDING AT IT PARK DEHRADUN					
ONLINE SEALED PRICE BIDDING- CIVIL & STRUCTURAL WORKS					
Item No.	DESCRIPTION	UNIT	Total Qty	Rate	Amount
	PREAMBLE				
	Rates shall be inclusive of the following				
	1) The servicable and unservicable materials shall be stacked separately and properly in the designated place and to be stacked/stored at designated till the disposal /reuse of the same. The debries, excess materials is to be carted outside the premises and disposed off at the SIDCUL designated place upto any lead, lift and travel by the contractor at his own cost.				
	2)All the civil works has to be carried out with minimum 43 grade OPC cement and VSI grade crushed sand, of required fineness,which shall be free from stilt and other impurities.				
	3) All the civil works must be cured for at least 7 days.				
	4) For all works, water to be use must be fresh, potable and pure without any salinity and turbidity.				
	5) The rates quoted for all items of the BOQ shall include the following specifications:-				
	i) All the works are to be carried out at all height and locations i.e. from foundation level, ground floor of the building upto the overhead water tank, roof slab or mumty roof slab as applicable.				
	ii) Providing and fixing Mild steel double scaffolding system (cup and lock type)on the exterior side, up to any height(entire height) of the building structure made out of 40mm dia. M S Tubes 1.5m centre to centre, horizontal and vertical tubes joining with cup and lock system with M.S. tubes, m. S. Tube challies, M. S. clamps and M S Stair case system including the working platforms etc. and maintaining it in a servicable condition for the entire required duration as approved and directed by SBI/APMC and removing it there after.				
	iii) The scaffolding system shall be stiffened with bracing, runners connection with the building fascia etc. wherever required & including providing vertical supports which shall be sound and strong, tied together with horizontal steel /metal support pieces over which scaffolding planks shall be fixed properly & secured at required locations including the essential safety features for the workmen etc. complete as per direction and approval of SBI/APMC.Note:- Scaffolding shall not be removed without prior approval of SBI/APMC				
	iv) Providing and fixing temporary support arrangement such as steel props (upto any number whenever and wherever required as directed by SBI/APMC) to support the structure provisionally during the project duration for all trades of works etc., and maintaing the props in position till required and as directed by the consultant including other safety elements such as bracings steel angles,working platforms, plates etc., which shall be provided and considered in the quoted rates for the area in the vicinity in adequate numbers as directed.All trades or work indicated herein under shall include all leads& lifts & working upto any heights, depths, and levels.				
	v) Providing and fixing safety net around the work so that loose plaster/ concrete does not cause damage to the property or any humen beings, if necessary and removing the same after completion of work.				
	vi) Providing and covering entire external surface with Hessian cloth curtains throughout the duration of the project and carefully removing the same after completion of the work.				
	vii) Providing all types of PEE to the workforce such as safety shoes, safety helmets, reflective safety jackets, full body safety harness, goggles, gloves etc. complete for all types of workforce engaged on site for execution of the work.				
	viii) The quoted rate should include cost of nessary scaffolding, staging, centring and shuttering etc. as required for execution of the job at any height and location including removal of the same. The scaffolding should be erected and anchored into the concrete members with the help of expandable bolts, which are to be cut as the scaffolding is removed, no wall is to be punctured, at no extra cost to the bank.				
	ix) Rates shall be inclusive of all enabling works like tower cranes with all safety measures , arial lifts, man amd material lifts, Temporary lifts, scaffolding, Cup lock system, Labour camps, storages, godowns, all required permission from local governing respective authorities to carry out works, all insurances, all licenses, administration, all S.H.E. related measures, security watch and ward measures, barricades other than spcified, traffic management, tree protection, property damage repair, water, electricity, DG Set as per requirements, all tools, machineries, vehicals etc. complete.				
	x) Before starting the excavation NGL levels shall be got varified and approved by SBI/APMC and RL levels to be at the top of different layer and based on the difference levels excavation qty shall be calculated. Area of excavation shall be arrived by adding max. 0.6m on each from RCC side working space around foundation /Raft or actual area required/excavated for basment excavation all as per direction from SBI/APMC				
	xi) All rates should be inclusive all loading, unloading, shifting, all leads, lifts, sorting, transportation, lobours, tools, plants, machinery, etc. complete.				
	xii) All the above mentioned points including the requisite elements and items as mentioned shall be considered included within the quoted rates of the line items of the BOQ and nothing extra would be paid on this account.				
	xiii) Though locations of execution are mentioned for specific items, Contractor have to execute those all items at all required / necessary locations at no extra cost as per direction from SBI/APMC				
	1. EARTH WORK				
1.1	SURFACE DRESSING				
	Surface dressing of the ground including clearing jungle, uprooting of rank vegetation, grass, brush wood, trees and saplings of girth and removal of rubbish etc., the rate inclusive of disposing the same outside the premises to any distance & place arranged by the contractor of his own by Mechanical Transport for all lead, lifts including loading,unloading and stacking complete as directed by the Bank.				
	All kinds of soil	Sqm	4018.00		
1.2	Mild Steel Z type sheet piles				

	Providing & Driving Mild Steel Z. type sheet piles of any kind of approved type and size conforming to I.S. code in all kinds of soil/ soil mixed with gravel, shingle & pebbles, by vibro-sinker including handling, cutting to requisite size, drilling holes, hoisting in position, welding, fabrication of sets of taper piles, corner piles, anchors etc. with clutch bars as may be required including staging, scaffolding and hire charges of driving machinery and equipments, scraping and cleaning piles, stacking extracted piles including the cost of sheet piles, all cost of labours, supply and carriage of equipments to site (by any mean) as per drawing and direction of the Engineer-in-charge. NB:- Measurement of area underground to be taken i.e. straight length of pile multiplied by driven length). The driven piles shall be taken out after work upto plinth level is completed and refilling done. Scrapped & cleaned sheet piles shall be the property of the contractor and necessary credit for the same shall be considered by the contractor at the time of quoting rates for this item,	Sqm	1532.00		
1.3	Excavation for foundations Earthwork in Excavation, manually or by mechanical means (Hydraulic excavator) for foundation of walls, column footings, pile caps, raft, foundations, plinth beams, steps, water tanks, cess pits, sumps etc., in all types of soil including soft or hard moorum, boulders (upto 0.10 cum) shoring the sides wherever necessary, bailing/pumping out sub-soil /rain water, necessary shoring, strutting, dressing, levelling compacting the excavated bed to desired levels and keeping the foundation trenches and pits dry including filling back the trenches by selected and approved quality excavated earth in layers not exceeding 20 cm., etc. including stacking top vegetation soil & good available earth for backfilling (at any distance, lead & place arranged by the contractor of his own) complete in all aspects as per drawings and instructions of Engineer in charge. Rate to include necessary cost towards transportation of remaining material rendered surplus out side the Bank's premises/site and disposing the same to place arranged by the contractor of his own with all lead and lift including labour for loading, unloading surplus excavated earth complete as directed by the Bank.				
1.3.1	All kinds of soil	Cum	29251.00		
1.3.2	Ordinary rock	Cum	3044.00		
1.4	Extra for every additional lift for excavation in soil and rock Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil including ordinary rock	Cum	27508.00		
1.5	EARTH FILLING Filling approved quality available excavated surplus good earth or muram (brought from outside) -excluding rock etc. in trenches, plinth, plinth protection, under floors, sides of foundations etc. spreading in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming (manually or mechanically), dressing, levelling, watering, compacting etc. complete with all lead, lift & transportation within the site/plot/premises as per drawings and instructions of Engineer in charge. Required finished compacted volume shall be measured for payment.	Cum	9583.00		
1.6	DISPOSAL OF SURPLUS EARTH Disposal of surplus earth, dismantled rock, debris etc. outside the site/premises to any municiple approved dumping ground / unobjectionable place (within / outside Municiple limits) or to any place arranged by the contractor of his own with all lead and lift, including royalty, loading at site, Mechanical transportation, unloading, stacking, spreading, etc. complete as directed by the Engineer-in-charge.	Cum	22712.00		
1.7	ANTI TERMITE TREATEMENT Supplying the chemicals & carrying out pre-construction Anti-termite treatment at various stages of construction as per IS 6313:2013 and as recommended by the chemical manufacturer to safeguard the building against termite including execution and submission of guarantee for a period of 10 years(On non judicial stamp paper of required value as per format approved by Architect/ Bank) against any subterranean pests infestation. This work is to be got executed through Specialised Agencies as per their specifications or an approved equivalent specialized agency.(Measurement shall be done as per built up area of 2nd basement of the building being treated.) Approved Anti-termite treatment agency- Pest Control (India) Ltd, Godrej Pest Control, Capital pest control (India) or equivalent Stages of treatment:(Frame structure with basement) 1st stage: Treatment to soil below foundations. 2nd stage: Treatment to soil along the retaining wall. 3rd stage: Treatment of soil along external perimeter of building. 4th stage: Treatment to soil surrounding pipes,wastes and conduits. 5th stage: Treatment of soil under floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the floor: 6th stage: Any other location as deemed fit by The Architect / Engineer.	Sqm	3330.00		
2. CEMENT CONCRETE WORK					
2.1	PLAIN CEMENT CONCRETE				

	Providing and laying PCC (plain cement concrete) M 10 grade concrete, 1:3:6 by volume (1 part of cement: 2 parts of coarse sand: 4 parts of stone aggregates of size 20mm and downgraded) ,M10 under foundation, plinth protection,grade slabs, coping, cill concrete etc. manufactured in a fully automatic batching plant and transported to site of work in transit mixers having continuous agitation, for all leads and placing/pumping from Transit mixers to site of laying ,spreading, ramming, compacting as per requirement, finishing in line, level and plumb, curing etc. including the cost of centering, shuttering complete in all respect as per specification or as directed by Architect/Engineer. M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	Cum	976.00		
2.2	PLINTH PROTECTION				
	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth, curing etc. complete in all aspect.	Sqm	184.00		
3. REINFORCED CEMENT CONCRETE WORK					
3.1	REINFORCED CEMENT CONCRETE WORK				
	Providing and laying in position ready mixed M-35 cement concrete for reinforced cement concrete work for all levels below and above plinth for RCC structural elements, viz. footing, columns, beams, slabs, raft, lintel, floor /plinth beams, plinth beam ledges, grade on slab, walls parapets boxes, folded plates, chajjas, mullions, retaining walls, shear walls, rcc pardi, fins, staircases, overhead and underground water tanks, mangers etc. in any shape and as per structural design and as directed using fly ash and OPC 53-grade cement with cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixers having continuous agitation, for all leads and heights including placing/pumping of RMC from Transit mixers to site of laying of concrete, spreading, compacting and finishing the surface in line, level and plumb as per requirement and curing etc. including the cost of centering, shuttering, staging, propping, scaffolding, finishing, curing etc. and also including the cost of admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability but excluding reinforcement, as per direction of Engineer-in-charge. Cement content considered in this item is @ 410 kg/cum.				
	Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement. (Approved Cement Makes- Ultratech, ACC, Ambuja, JK)				
	All works upto highest plinth level				
3.1.1	Concrete of M35 grade with minimum cement content of 410 kg /cum	Cum	4896.00		
	All works above plinth level and up to highest building level				
3.1.2	Concrete of M35 grade with minimum cement content of 410 kg /cum	Cum	3008.00		
3.2	REINFORCED CEMENT CONCRETE M-50				
	Providing and laying in position ready mixed M-50 cement concrete for reinforced cement concrete work for all levels below and above plinth for RCC structural elements, viz. footing, columns, beams, slabs, raft, lintel, floor /plinth beams, plinth beam ledges, grade on slab, walls parapets boxes, folded plates, chajjas, mullions, retaining walls, shear walls, rcc pardi, fins, staircases, overhead and underground water tanks, mangers etc. in any shape and as per structural design and as directed using fly ash and OPC 53-grade cement with cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixers having continuous agitation, for all leads and heights including placing/pumping of RMC from Transit mixers to site of laying of concrete, spreading, compacting and finishing the surface in line, level and plumb as per requirement and curing etc. including the cost of centering, shuttering, staging, propping, scaffolding, finishing, curing etc. and also including the cost of admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability but excluding reinforcement, as per direction of Engineer-in-charge. Cement content considered in this item is @ 538 kg/cum.				
	Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement. (Approved Cement Makes- Ultratech, ACC, Ambuja, JK)				
	All works upto plinth level				
3.2.1	Concrete of M50 grade with minimum cement content of 538 kg /cum	Cum	256.00		
	All works above plinth level				
3.2.2	Concrete of M50 grade with minimum cement content of 538 kg /cum	Cum	168.00		
REINFORCEMENT					

3.3	<p>Providing & laying and fixing in position high strength deformed steel bars of minimum grade Fe 550 TMT bars conforming to IS : 1786/1139 for RCC structures including straightening, cutting, bending and binding in position of steel reinforcement bars to correct shape and size as per detailed drawings, specifications and approved bar-bending schedules, including preparing & maintaining bar bending schedules in substructure / superstructure walls, columns, slabs, beams, water tanks, Septic tank etc.; with correct size super fine micro concrete cover blocks and annealed binding wire (G.I.) of 18 gauge including dewatering to keep site dry etc. complete for all heights and depths below and above plinth level including staging, scaffolding etc. as per specification or as directed by the Engineer in charge.</p> <p>Measurement of steel is strictly as per I.S. Code. No extra for bending will be permitted.</p>				
	Thermomechanically Treated Reinforcement -Fe 550 (Approved Makes- JSW, TATA, SAIL, Jindal Steel & power)	Kg	1222821.00		
4. BRICK WORK					
4.1	9" BRICK WORK IN FOUNDATION				
	Providing and constructing 230 mm thick (or above) brick masonry walls in sub structure / foundation with well burnt uniform size and colour locally available approved quality bricks of class 7.5 with minimum crushing strength not less than 75kg/cm2 in Cement Mortar 1:6 (1 cement : 6 coarse sand) for walls, shaft walls, parapets, drains, manholes, trenches etc. in proper line, levels and plumb including striking out / raking out joints, curing, necessary scaffolding, etc. complete for all heights and levels in substructure and super structure as per the approved drawing and as per instructions of Architect / Engineer in charge.	Cum	338.00		
4.2	9" BRICK WORK IN SUPERSTRUCTURE				
	Providing and constructing 230 mm thick (or above) brick masonry walls for superstructure above plinth level & up to highest floor level with well burnt uniform size and colour locally available approved quality bricks of class 7.5 with minimum crushing strength not less than 75kg/cm2 in Cement Mortar 1:6 (1 cement : 6 coarse sand) for walls, shaft walls, parapets, drains, manholes, trenches etc. in proper line, levels and plumb including striking out / raking out joints, curing, necessary scaffolding, etc. complete for all heights and levels in substructure and super structure as per the approved drawing and as per instructions of Architect / Engineer in charge.	Cum	472.00		
4.3	4" BRICK WORK IN SUPERSTRUCTURE				
	Providing and constructing half brick masonry of 110 mm thick with well burnt uniform size and colour locally available approved quality bricks of class designation 7.5 with minimum crushing strength not less than 75kg/cm2 in Cement Mortar 1:4 (1cement : 4 coarse sand) including providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry, required formwork all complete etc. in proper line, levels and plumb including raking out joints, curing, necessary scaffolding, etc. for all heights and levels above or below plinth, complete as per the approved drawing and as per instructions of Architect / Engineer.	Sqm	497.00		
4.4	AAC BLOCK WALL				
	Providing and laying Autoclaved Aerated concrete blocks (AAC) masonry 100 mm/ 200 mm thick with Grade-1 AAC blocks of density 551-650 kg/cum conforming to IS:2185 (Part 3) with approved block laying polymer modified adhesive mortar in sub-structure and super structure in proper line, levels and plumb including providing RCC band at sill level and lintel level including watering, striking out / raking out joints, curing, scaffolding, etc complete for all heights, leads and levels as per the approved drawing and as per instructions of Architect / Engineer. All necessary tests of AAC blocks to be carried out as per IS code. Only reinforcement steel will be paid extra. RCC band details- 1. for 100 mm thk wall- 2 nos of 8mm dia bars with links of 8mm dia bars at 150 mm c/c. 2. for 200 mm thk wall- 4 nos of 8mm dia bars with stirr ups of 8mm dia bars at 150 mm c/c.				
4.4.1	100 mm AAC Block work	Cum	87.00		
4.4.2	200 mm AAC Block work (Approved makes- Magicrete, Modcrete, Biltech or equivalent)	Cum	779.00		
5. FACADE WORK					
	Note:				
	1) Item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc. enabling temporary structures and services, cranes or cradles etc. as described above and as specified.				
	2) The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge.				
	3) The rates shall be inclusive of Testing of all materials such as aluminium section, glass panels, silicon sealant etc and site tests. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation.				

	4) The Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer- in-Charge.				
	5)For the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places.				
	6) The rate shall be inclusive of preparing shop drawings, design & engineering drawings, approval of shop drawings from Architect / Engineer. No additional cost will be paid if Architect / Engineer makes changes in structural sections etc.				
	7) The said system shall also include engineering for including the LED Light fixtures within the said facade, whereas the item for said lighting is part of Electrical BOQ.				
5.1	CLAY FAÇADE PANELLING WITH ALUMINIUM FRAME WORK				
	<p>Providing and Fixing CFP – ventilated Clay Façade Panelling system in approved shade, finish, and maximum size of 600 mm X 1200 mm in thickness of 15mm.</p> <p>The cladding panels shall be fixed on to existing cured plastered surface substrate wall treated with one or two coats of primer with appropriate Aluminium rectangular hollow section vertical member's framework of 50mm X 50mm (2mm thick) SDP Super Durable Polyurethane Powder coating). Aluminium Substructure which shall be spaced out in accordance to the dimensions of the panel with minimum spacing of 600mm. The framework shall be attached through L shaped uncoated aluminium connectors of 25mm X 37mm (2mm thick) to the substrate walls. The panels shall have an even groove for resting on to a continuous aluminium rail profiles throughout their length. The rate shall include all material, labours, scaffolding, staging, curing etc. complete for the said work & the work to be carried out as per direction of the Engineer- in charge.</p> <p>(Only Front visible area shall be measured for payment purpose.)</p> <p>(Approved makes- Unistone, NBK Architectural Terracotta/ CN Architectural Terracotta or equivalent)</p>	Sqm	3810.00		
5.2	ALUMINIUM COMPOSIT PANEL CLADDING				
	<p>Designing,providing, fabricating, testing,supplying, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, in pan shape in metallic colour of approved shades and size,made out of 4mm thick aluminium composite panel, with open grooves for linear as well as curvilinear portions of the building ,fixed to structural steel frame work and/ or with the help of cramps, pins etc. including providing necessary frame work of mild steel box section 25x50mm at spacing of 600mm centre to centre in horizontal and vertical position or as required, stainless steel cramps and pins etc., including scaffolding, staging, necessary supports etc. and sealing the joints with approved weather sealant as per Architectural drawing and direction of Engineer-in-charge complete in all aspects,for all heights and all levels etc.</p> <p>(Approved makes- Alstrong, Aludecor, Alucobond, Reynobond or equivalent)</p>	Sqm	618.00		
5.3	GFRC SCREEN JALI				
	<p>Providing and fixing, Glass Fibre Reinforced Concrete (G.F.R.C) Screen Jali casted with 'Spray Mix' concrete design in approved size, pattern, with overall thickness of 35mm) in approved shade. The fixing of Elements should be done using 'Dry fixing' method onto structural support members i.e. R.C.C, Brick work or Red Oxide Primer -paint or Epoxy primer -paint treated mild steel. The fixtures, fasteners and self-tapping screws to be used for dry fixing should be of HP/STEEL GRIP/ KLIMAS/ Fischer or with SS 304 Clamps.</p> <p>The contractor shall submit shop drawings of the same, the drawings to be duly approved by the Engineer in charge at site. Rate shall include the structural Steel frame (Horizontal and Vertical member) support made up of MS box pipe of minimum 50X50mm or 75X100mm and 5mm thickness along with L-clamp welded to hold the GRC Jalli for required building height & opening to withstand wind pressure complete in all aspects including scaffolding, staging etc. as per approved drawings and directions of Engineer in charge.</p> <p>(Approved makes- Unistone, Kingspan, Birla GRC or equivalent)</p>	Sqm	313.00		
5.4	STRUCTURAL GLAZING FRAME WORK				
	<p>Design, supply, fabricating & erection of Aluminium Frame Work for semi unitized (four side) structural glazing system to withstand the designed wind pressure (the system must pass the proof test at 1.5 times design wind pressure) system incorporating aluminium mullion (60X120mm) , transoms (31x60mm) or of required size ., aluminium extrusions, trims etc. shall be duly anodised to minimum 20 micron, of approved shade with all necessary fittings, fixtures, S.S. screws, S.S anchor bolts, fastener (304) S.S. nut bolt, M.S. 'L' type bracket with hot dip galvanised 80 micron thick spacer tape, 15 mm dia backer rod with weather silicon DC-789/995 gasket and hardware along with silicon sealant shall be used to ensure stability and water tightness of the structure including necessary fine stoppage, EPDM gasket, clamping system, 6mm X 12mm spacer tape with silicon DC995 all as per the architectural drawings and approved shop drawings including:</p>	Sqm	135.00		
	<p>Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.</p>				
	<p>Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete.</p>				

	<p>The system shall be designed to accommodate double glass unit / provision for the openable shutter wherever required / provision single unit glass / provision for insulated panel and ACP cladding, including sub frame work / each section for glass unit etc complete and as directed by Architect / Engineer.</p> <p>NOTE : All other sections if required shall be of minimum 2mm thickness. All aluminium extrusions shall be of 6063 TS 5/6 alloy conforming to ASTM B 221.</p>				
5.5	EXTRA FOR OPENABLE PANELS				
	<p>Extra for openable side /top hung vision glass panels (DGUs) including providing and supplying at site all accsories and hardware sfor the openable panel sas specified and of the approved make such as heavy duty stainless steel friction stay, 2 points cremone locking sets of Kinlong/ giessie/ Assabloy make with stainless steel plates,handles,buffers etc.including necessary stainless steel screws /fasteners, nuts, bolts, washers, scaffolding/ staging etc. all complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer-in-Charge.</p> <p>The payment for the DGU glass shall be paid in a separate item and rate should be quoted only for framework of openable portion and its required fixtures as mentioned above.</p>	Sqm	4.00		
5.6	DOUBLE GLASS UNITS (DGUs)				
	<p>Providing, assembling and supplying vision glass panels (DGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6mm thick, of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade, an inner Heat strengthened clear float glass 6mm thick, spacer tube 12mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances,including scaffolding, staging etc. complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer-in-Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor.</p> <p>For payment, only the actual area of glass on face # 1 of the glass panels (including the areas of the grooves) provided and fixed in position, shall be measured in sqm.</p> <p>(Approved makes- Saint Gobain, ASAHI, Guardian, Pilkington or equivalent)</p>	Sqm	574.00		
5.7	Fixed Glazing (Spider fittings) with double leaf glazed doors				
	<p>"Design supply & installation of suspended Spider Glazing system held with Spider Fittings of SS-316 Grade Steel of approved manufacturer with glass panel having 12 mm thick clear toughened glass held together with SS- 316 Grade Stainless steel Spider & bolt assembly with laminated glass fins 21 mm thick. The Glass fins and glass panel assembly shall be connected to Slab/beams by means of SS- 316 Grade stainless steel brackets & Anchor bolts and at the bottom using SS channel of 50x25x2mm using fastener & anchor bolts, non staining weather sealants of approved make, Teflon/ nylon bushes and separators to prevent bi metallic contacts, all complete to perform as per specification and approved drawings. The joints between glass panels (6 to 8 mm) and gaps at the perimeter & in U channel of the assembly to be filled with non staining transparent weather sealant, so as to make the entire system fully water proof & dust proof. This also includes providing and fixing fully glazed doors (Double Leaf) with 12mm thick clear toughened glass of approved make fixed with following patch fittings on each leaf 1) Floor spring with SS cover plate suitable for double door action ,Hafele model No-932.79.170 or equivalent. 2) Bottom patch fitting ,Hafele model 981.50.010 or equivalent. 3) Top patch Fitting as per site requirement of Hafele or equivalent approved make . 4) Corner patch Lock- Hafele model No. 981.880.480 or equivalent 5) Handle-SS matt finish 932mm long 2 Nos in each leaf ,Hafele Product Code-903.19.739 or equivalent etc complete in all aspect and as directed by Architect/ Engineer. The rate shall include all design, Engineering and shop drawing including approval from structural designer, labour, T&P, scaffolding, other incidental charges including wastage, enabling temporary services all fitting fixers nut bolts, washer, Buffer plates, fastener, anchors, SS channel laminated glass etc. all complete. For the purpose of payment, actual elevation area of Glazing including doors, thickness of joints and the portion of Glass panel inside the SS channel shall be measured. Area of Fin shall not be measured for payment purpose.</p> <p>(Approved makes of glass- Saint Gobain, AIS, ModiGuard or equivalent) (Approved makes of patch fittings & spiders- Dorma, Hafele,Kich, Kinglong, Assabloy, or equivalent)</p>	Sqm	105.00		
5.8	HORIZONTAL ALUMINIUM AEROFOIL SUN LOUVERS				
	<p>Supply and Installation of Aluminium, Airfoil Sun Louver blade of width 360 mm & thickness not less than 2 mm for Horizontal application, to provide the optimum sun shading efficiency in standard Powder coating finish.Finish will as per the approved Standard RAL color in Super durable Powder Coat System. Finish thickness to be minimum 2 mils.</p> <p>AF Louvers shall be installed with the factory assembled outriggers or with Birdmouth Brackets made as per MIGUA Standards. In case of the installation has to happen with Outriggers, then it shall be done with the help of SS Screws, the Out-triggers shall have the holes to accept the SS Screws, so that it can screwed in the threaded internal screw slots in AF 360 Louvers.</p> <p>(Approved makes- MIGUA AF-360, Jindal, Aerofoil or equivalent)</p>	RM	135.00		
6. DOORS & WINDOWS					
UPVC WINDOW/VENTILATOR/SLIDING DOOR					

6.1	Providing and fixing factory made uPVC glazed/ wire mesh windows/ doors comprising of lead free uPVC multichambered frame, sash and mullion/ coupler (wherever required) extruded profiles having minimum wall thickness of 1.70 mm for Series R1 and R2 profiles and 2.10 mm for Series R3 and R4 profiles in any shape, colour and design duly reinforced with galvanized mild steel section made of required shape & size as per CPWD Specification, uPVC extruded glazing beads, interlocks and Inline sash adaptor (wherever required) of appropriate dimension, EPDM gasket, hardware, SS 304 grade fasteners of minimum 8 mm dia. with countersunk head, comprising of matching polyamide PA6 grade sleeve for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame, sash & mullion (if required) shall be mitred cut and fusion welded/ mechanically jointed duly sealed at all corners, including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of approved size and quality, all complete as per approved drawing conforming to CPWD specification & direction of Engineer-in-Charge. Section of steel reinforcement and cross sections of uPVC profiles to be as per design approved by Engineer-in-Charge. Approved makes- Weather Seal (Asian Paints), Saint-Gobain, Asahi, Veka or equivalent				
6.1.1	uPVC Casement cum fixed panel window having single casement panel, fixed panel and louvered panel as per drawing with S.S 304 friction hinges as per size and weight of sash, multi-point locking system, zinc alloy (zamak) powder coated handles. Casement cum fixed panel window shall be made using R4 series with frame (64mm & above) x (50mm & above) & sash (64mm & above) x (70mm & above) & mullion (64mm & above) x (70mm & above). (Height above 1.8 meter; each openable shutter upto 0.8m width). Glazing of windows shall be vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm. (Glazing shall be paid seperately). SG-3 to SG6	Sqm	533.00		
6.1.2	uPVC Casement cum fixed panel window having single casement panel, fixed panel and louvered panel as per drawing with S.S 304 friction hinges as per size and weight of sash, multi-point locking system, zinc alloy (zamak) powder coated handles. Casement cum fixed panel window shall be made using R4 series with frame (64mm & above) x (50mm & above) & sash (64mm & above) x (70mm & above) & mullion (64mm & above) x (70mm & above). (Height above 1.8 meter; each openable shutter upto 0.8m width). Glazing of windows shall be float glass panes of 5 mm thickness. (Glazing shall be paid seperately). W1&W2.	Sqm	15.00		
6.1.3	uPVC Casement window double panels with French (False) Mullion with S.S. 304 friction hinges as per size and weight of sash, multi-point locking system, zinc alloy (zamak) powder coated handles.Casement window shall be made using R4 series with frame (64mm & above) x (50mm & above) & sash (64mm & above) x (70mm & above) & French (False) mullion (64mm & above) x (60mm & above). (Height above 1.8 meter).Glazing of windows shall be float glass panes of 5 mm thickness. (Glazing shall be paid seperately). W3&W4 and W1 for Guard Room	Sqm	25.00		
6.1.4	uPVC Ventilator Casement window single panel with or without fixed panel with S.S. 304 friction hinges as per size and weight of sash, single point locking zinc alloy (zamak) powder coated handles.Ventilator Casement window shall be made using R1 series with frame (33mm & above) x (35mm & above) & sash /mullion (33mm & above) x (50 mm & above). (Height upto 0.90 meter).Glazing of ventilator shall be float glass panes of 5 mm thickness. (Glazing shall be paid seperately). V1&V2	Sqm	21.00		
6.1.5	uPVC Two track two panels sliding door with Aluminium channel for roller track, wool pile, zinc alloy (zamak) powder coated handle on every panel along with multi-point locking system, adjustable nylon rollers with SS 304 body.Sliding door shall be made using R3 series with frame (55mm & above) x (40mm & above) & sash (30mm & above) x (74mm & above). (Height upto 2.5 meter).Glazing of door shall be float glass panes of 5 mm thickness. (Glazing shall be paid seperately). SD1	Sqm	30.00		
6.1.6	uPVC Fixed window/ ventilator with mullion/ transom using R3 series with frame (55mm & above) x (45mm & above) & mullion (55mm & above) x (65mm & above). (Height upto 2.5 meter).Glazing of window/ventilator shall be float glass panes of 5 mm thickness. (Glazing shall be paid seperately). SD1	Sqm	17.00		
6.2	FLOAT GLASS FOR WINDOW/DOOR Providing and fixing glazing with float glass panes of 5 mm thickness (weight not less than 12.50 kg/sqm)in UPVC door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . W1 To W4,W1,V1&V2 and SD1	Sqm	108.00		
6.3	FRAME LESS TOUGHENED GLASS DOOR				

	<p>Providing and fixing 12 mm thick frameless toughened glass door of approved brand and manufacture, including providing and fixing top & bottom pivot & double action hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings including supplying, providing & fixing following fittings/ accessories, scaffolding, staging etc. complete as per drawings/ direction of Engineer-In- Charge:</p> <p>i. SS304 grade D type 300mm Pull Handle with 19 mm dia (SD12PSS (19MM)) fixed with SS screws.</p> <p>ii. Special quality & design Centre patch lock with cylinder PSS :Polished lock for frame less 12 mm thick toughened glass shutters including necessary SS Screws etc.of make Dorset Item code no. DPF-325.</p> <p>(Approved makes of glass- Saint Gobain, AIS, ModiGuard or equivalent) (Approved makes of patch fittings & spiders- Dorma, Dorset, Hafele,Kich or equivalent)</p>	Sqm	91.00		
6.4	WPC DOOR FRAME				
	<p>Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid door/window/Ceoseatory windows & other Frames/Chowkhat fabricated with miter joints after applying PVC solvent cement and screwed with full body threaded star headed SS screws and fixed in position with M.S hold fast/lugs/SS dash fasteners of required dia and length including scaffolding etc. complete as per direction of Engineer-In- Charge.</p> <p>(Approved makes- Alstone, Ecoste, Qute extrusions, Al Satwa or equivalent)</p>				
6.4.1	WPC door frame of size 50 x 100 mm	Rm	297.00		
6.4.2	WPC door frame of size 65 x 100 mm	Rm	343.00		
6.4.3	WPC door frame of size 65 x 150 mm	Rm	29.00		
6.5	30MM THICK WPC FLUSH DOOR SHUTTER				
	<p>Providing and fixing 30 mm Thick factory made single extruded WPC (Wood Polymer Composite) solid decorative type flush door shutter of required size, to be laminated with PVC foil of minimum 14 microns thick of approved design pasted with hot melt adhesive on both faces of shutter including supplying, providing & fixing following fittings/ accessories, scaffolding etc. complete as per drawings/ direction of Engineer-In- Charge:</p> <p>i. S.S. 316 Grade Fire resistance BSEN 1634:1:2014 Certified & Mechanically tested BSEN 1935:2002 Satin Finish S.S. 316 Grade Door Hinges approximate size 125mm X 62mm X 2 mm of KICH make (DH125S) with S.S. 316 Grade Pin,and Rivet with necessary S.S.304 Grade Self Tapping Phillips Cross Head Screws etc.</p> <p>ii. S.S. 316 Grade Satin Finish Solid design 'N' Type Pull Handle of KICH Make (PHN2208S) with size □22 X 8 X 200mm(C/C) high Grade Brass Busing.</p> <p>iii. SS pull bolt lock, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed of required colour and shade, with necessary screws bolts, nut and washers.</p> <p>iv. S.S. 304 Grade Stainless Steel Satin Finish Square Tower bolt of KICH Make (TBS36S) overall length (excluding Bracket) 150 mm and inner bolt of 10 mm and outer 15X15 mm Sqaure Pipe with necessary S.S. Fixing Screws.</p> <p>(Approved makes- Alstone, Ecoste, Qute extrusions, Al Satwa or equivalent)</p>	Sqm	95.00		
6.6	35MM THICK WPC FLUSH DOOR SHUTTER				
	<p>Providing and fixing 35 mm Thick factory made single extruded WPC (Wood Polymer Composite) solid decorative type flush door shutter of required size, to be laminated with PVC foil of minimum 14 microns thick of approved design pasted with hot melt adhesive on both faces of shutter including supplying, providing & fixing following fittings/ accessories, scaffolding etc. complete as per drawings/ direction of Engineer-In- Charge:</p> <p>i. Aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm).</p> <p>ii. Satin Finish S.S. 316 Grade Mortice Handle of KICH Make (RC1SMH1914S) 22 X 8 mm With Rectangle Cap 200X50X11 mm for Mortice Lock Body including necessary Fixing screws.</p> <p>iii. Satin Finish Mortise Latch of KICH Make (ML2S) with approximate size of back set 50 mm, 26 mm brass latch, Stainless steel main & Strike plate suitable for minimum door thickness 30 mm</p> <p>iv. S.S. 304 Grade Stainless Steel Satin Finish Square Tower bolt of KICH Make (TBS36S) overall length (excluding Bracket) 200 mm and inner bolt of 10 mm and outer 15X15 mm Sqaure Pipe with necessary S.S. Fixing Screws</p> <p>v. S.S. 316 Grade Satin Finish Wall mounted Door Stop with the lenth of 75 mm including Rubber of KICH make (DST75S) with necessary SS screws</p> <p>vi. Zinc Material Door Stopper of KICH make (DSTRS) with the length of 163 mm including PVC Rubber with necessary screws</p> <p>vii. combination finish SS 304 Grade With 2 mm Thickness Aldrops of KICH PR Make (PRAD12612C) Ø 16 mm X 300 mm including 3 nos.fixing Bracket and 1 no. locking bracket with necessary MS nickle Plating Bolts</p> <p>(Approved makes- Alstone, Ecoste, Qute extrusions, Al Satwa or equivalent)</p>	Sqm	145.00		
6.7	2 HOURS FIRE RATED DOORS WITH PANIC BAR				

	<p>Providing and fixing 2- Hours fire resistant door (IS 5509 or CBRI Fire certified) with Vision panel of size 300 X 300mm, Panic Bar, Shutter, Frame size & other necessary approved fittings/ hardware with Manufacturers certificate as per National Building Code 2016 guidelines along with door frame etc. including supplying, providing and fixing following fittings / accessories of Marshall/ Dorma brands etc. all complete as per approved drawings or as per instructions of Architect / Engineer in charge:</p> <p>i. HINGES : Providing & fixing fire rated ball bearing hinges of size 102mmX76mmX3mm stainless steel 304 grade ii. DOOR CLOSER : Providing & fixing of Dorma's TS 93 , Brition's LCN1460 or Marshall MH-DC-S-14016 (2-4) exturded aluminimum body heavy duty 2 hrs fire rated door closer. The door closer shall be of type 3-4 , non handed having back check function with full body stainless steel cover. iii. PANIC BAR: Providing & fixing of stainless steel 304 grade fire rated touch type panic bar for Double Leaf door from Marshall MH -PB - SS -11001-03/ Dorma PHA 2000-1 and PHA 2003/ Von Duprin CX 98 for 2 hrs fire rating. iv. OUTSIDE ACCESS DEVICE (TRIM): Providing & fixing 304 grade external trim (Latch & Lock) with 3 keys for providing outside access for panic bar of approved make Marshall MH-PB- SS-11002 SS / Dorma 's PHX 03 / Von Duprin's CX 98 series for wooden /Metal fire doors. all complete as per manufacturer's specifications. v. TOWER BOLT: Providing and fixing of Dorma's 9114306 , Briton's DAL FBH 6, Marshall's MS 300 304 grade Stainless Steel exposed Tower Bolt of size 10mm dia rod and 300 mm long with complete screws. vi. DOOR STOPPER : Providng & fixing of SS 304 grade foot stamped door stopper from Dorma / Brition / Marshall. vii. OFFSET HANDLE: Providing and fixing of Dorma's TGDID , Briton's E series and Marshall's 304 grade stainless steel Offset back to back pull handle of size 300mm long and 22mm dia with complete roses and studs for fixing.</p> <p>(Approved makes of Fire rated doors- Radiant, Sukriti, Synergy Thrislington, MPP or equivalent) (Approved makes of fire door hardware- Dorma, Marshall, Ingersoll Rands Briton or equivalent)</p>	Sqm	72.00		
6.8	<p>2 HOURS FIRE RATED DOORS WITH DEAD LOCK</p> <p>Providing and fixing 2- Hours fire resistant door (IS 5509 or CBRI Fire certified) with Vision panel of size 300 X 300mm, Panic Bar, Shutter, Frame size & other necessary approved fittings/ hardware with Manufacturers certificate as per National Building Code 2016 guidelines along with door frame etc. including supplying, providing and fixing following fittings / accessories of Marshall/ Dorma brands etc. all complete as per approved drawings or as per instructions of Architect / Engineer in charge:</p> <p>i. HINGES : Providing & fixing fire rated ball bearing hinges of size 102mmX76mmX3mm stainless steel 304 grade ii. DOOR CLOSER : Providing & fixing of Dorma's TS 93 , Brition's LCN1460 or Marshall MH-DC-S-14016 (2-4) exturded aluminimum body heavy duty 2 hrs fire rated door closer. The door closer shall be of type 3-4 , non handed having back check function with full body stainless steel cover. iii. DEAD LOCK: Providing and fixing of Dorma's 288 Series, Briton's EL 2010 Marshall's MH-L-13002 SSS European standard satin stainless finish Mortise Dead Lock with 80mm both side key cylinder tested to 100000 cycles of approved make and tested along with the wooden /Metal fire doors for 2 hrs. fire rating from CBRI Roorkee. vi. D- TYPE HANDLE: Providing and fixing of Dorma's TGDID , Briton's E series and Marshall's 304 grade stainless steel D- Type back to back pull handle of size 300mm long and 22mm dia with complete roses and studs for fixing. v. TOWER BOLT: Providing and fixing of Dorma's 9114306 , Briton's DAL FBH 6, Marshall's MS 300 304 grade Stainless Steel exposed Tower Bolt of size 10mm dia rod and 300 mm long with complete screws. vi. DOOR STOPPER : Providng & fixing of SS 304 grade foot stamped door stopper from Dorma / Brition / Marshall. vii. OFFSET HANDLE: Providing and fixing of Dorma's TGDID , Briton's E series and Marshall's 304 grade stainless steel Offset back to back pull handle of size 300mm long and 22mm dia with complete roses and studs for fixing.</p> <p>(Approved makes of Fire rated doors- Radiant, Sukriti, Synergy Thrislington, MPP or equivalent) (Approved makes of fire door hardware- Dorma, Marshall, Ingersoll Rands Briton or equivalent)</p>	Sqm	72.00		
6.9	<p>77MM THICK WOODEN ACCOUSTIC CUM FIRE / SMOKE CHECK DOOR OF 120 MINUTES FIRE RATING WITH 38db NOISE REDUCTION PROPERTIES</p>				

	<p>Providing and fixing of 2nd Class Teak wood Door Frame of section 145mm x 70mm installed with 10mm Dia X 150mm fastners (4nos. vertical and 2nos. horizontal) with heat activated intumescent fire seal strip of size 20mm x 4mm (Marshall / Raven) with 77mm thick door shutter having 38 dB acoustic, noise reduction properties along with 120 minutes fire rating, having infill of 45mm thick resin bonded glass wool of 24kg / M3 density coated with FR Acrylic Sealant (SDHL, Jotun & Berger) sandwiched between two 9mm thick Calcium Silicate boards, faced with 6mm thick commercial ply along with 1mm thick laminate facing final finish/3mm thick decorative veneer as final finish,</p> <p>with heat activated intumescent fire seal strip of size 20mm x 4mm (Marshall/Raven) mounted in the grooves having teak wood lipping of size 15x84mm all around the shutter.</p> <p>The internal frame work of the acoustic door shall be not less than 68x80mm. The acoustic wooden door assembly shall have heavy duty 2nos. automatic concealed spring loaded, self leveling door bottom seals (Marshall/Pemco) and 3 nos. of twinos type acoustic seal all around the door frame. The door frame in this item and edges of the door shutters shall be painted with fire retardant paint of (SDHL / BERGER/ JOTUN) to provide Class 1 surface spread of flame in desired shade over a coat of fire resistant primer.</p>	Sqm	8.40		
	<p>The single/double leaf doors shall be provided with vision panel of minimum size 300 x 300 mm made out of 5mm thick clear fire rated glass (imported) for 120 minutes fire rating of Schott (Germany) / Pilkington/Aasahi(Japan) fully transparent in fire/non-fire conditions having minimum 80% transparency with complete fire rated gasket channel & moulding beading and filling the gap between moulding /beading and glass with suitable sealant including supplying, providing and fixing following fittings / accessories of Mrahsall/ Dorma brands etc. all complete as per approved drawings or as per instructions of Engineer in charge:</p> <p>i. HINGES : Providing & fixing size 102mmX76mmX3mm (for Metal/Wooden fire doors) of 2 hrs. fire rated CBRI tested as per IS 3614 Part -2 and BS 476 Part-22 stainless steel 304 grade fire rated ball bearing hinges of size.</p> <p>ii. DOOR CLOSER : Providing & fixing of Dorma's TS 93 , Brition's LCN1460 and Marshall MH-DC-S-14016 (2-4) extruded aluminium body heavy duty 2 hrs fire rated door closer tested from CBRI Roorkee as per IS : 3614 Part -II and BS : 476 Part 20& 22 from CBRI Roorkee alongwith wooden /glazed / metal fire doors. The door closer shall be of type 3-4 , non handed having back check function , ANSI/BHIMA certified , and complies with EN 1154 for 100000 cycles with full body stainless steel cover.</p> <p>iii. D - TYPE HANDLE: Providing and fixing of Dorma's TGDID , Briton's E series and Marshall's 304 grade stainless steel D- Type back to back pull handle of size 300mm long and 22mm dia with complete roses and studs for fixing.</p> <p>iv. TOWER BOLT: Providing and fixing of Dorma's 9114306 , Briton's DAL FBH 6, Marshall's MS 300 304 grade Stainless Steel exposed Tower Bolt of size 10mm dia rod and 300 mm long with complete screws.</p> <p>v. DOOR STOPPER : Providing & fixing of SS 304 grade foot stamped door stopper from Dorma / Brition / Marshall.</p> <p>vi. OFFSET HANDLE: Providing and fixing of Dorma's TGDID , Briton's E series and Marshall's 304 grade stainless steel Offset back to back pull handle of size 300mm long and 22mm dia with complete roses and studs for fixing.</p>				
7. STEEL WORK					
7.1	STRUCTURAL STEEL WORK				
	<p>Structural steel work in built up tubular (round, square or rectangular hollow tubes etc.) with hot finished seamless type tube sections, trusses etc. including cutting, hoisting, fixing in position and finishing with a priming coat of approved steel primer including welding and bolted with special shaped washers etc. for all levels complete in all aspects as per approved drawings & as per instructions of Engineer in Charge.</p>	Kg	21370.00		
7.2	ROLLING SHUTTER				
	<p>Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1, ball bearings, grilled rolling shutters manufactured out of 8 mm dia M.S. bar instead of laths and M.S. top cover of required thickness for rolling shutters including 2 coats of synthetic enamel paint over a coat of primer, scaffolding etc. complete in all aspects as per approved drawings & as per instructions of Engineer in Charge.</p> <p>80x1.25 mm M.S. laths with 1.25 mm thick top cover</p> <p>The rate to include applying a priming coat of approved steel primer with two 2 or more coat of synthetic enamel paint. (Outer dimensions including hood will be measured for payment purpose.)</p>	Sqm	18.00		
7.3	STAINLESS STEEL RAILING				

	<p>Providing and fixing stainless steel (Grade 316) knock down railing system comprising of 50mm dia handrail, fixed on 50 mm dia round baluster placed at maximum 1200mm c/c along with 3 Nos. of 16 mm dia parallel mid rails connected at the side of baluster with fixtures. The balustrade would be fixed onto floor with casted base plate of minimum 6mm thickness anchored down on slab with Hilti fasteners. Base plate shall be concealed with suitable S.S. cover cap so that the mounting anchor fasteners are not visible after installation. Wall thickness of all pipes shall be taken as 1.5mm along with all visible components developed in High Grade S.S. and whenever required, joints to be filled with bushings for extra strength. Railing height to be taken at 1000mm from floor level. Rates should be inclusive of welding, grinding, buffing, polishing and making curvature (wherever required) fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer/Architect.</p> <p>Note : For payment purpose, length of handrails will be taken (between two outer balusters) excluding the length of railing beyond balustades.</p> <p>(Location : All floors - Staircases)</p> <p>(Approved makes- Kich, Dorma, Dline or equivalent)</p>	RM	212.00		
7.4	WALL MOUNTED SS HAND RAIL				
	<p>Providing and fixing knock down wall mounted handrail system comprising 50mm dia. Stainless steel pipe handrail (SS 316) mounted on the wall through wall brackets & anchor fasteners which will be placed at maximum 1200mm c/c distance and as per site requirement. Wall thickness of all Pipes shall be taken as 1.5mm along with all visible components developed in High Grade S.S. and whenever required, joints to be filled with bushings for extra strength. Wall Handrail height to be taken at 1000mm from floor level .Rates should be inclusive of welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, including fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the side of waist slab/wall with suitable arrangement as per approval of Engineer / Architect.</p> <p>Note :For payment purpose, length of handrails will be taken (between two outer balusters) excluding the length of railing beyond balustades.</p> <p>Location : Staircase 1 & staircase2 (wall side)</p> <p>(Approved makes- Kich, Dorma, Dline or equivalent)</p>	RM	62.00		
8. FLOORING WORK					
8.1	KOTA STONE FLOORING INCLUDING SKIRTING				
	<p>Providing and laying average 25mm thick machine cut mirror finished Kotah Stone flooring in cement mortar 1:4 (1 Cement :4 Coarse Sand) bedding of required thickness to match FFL and with neat cement float in proper line, level, plumb, slope with mirror polish including filling the joints with approved pigment to match the colour of tile. Rate to include the cutting the tiles for floor ducts and lids of electrical, computer and telephone wires and cleaning the same, curing etc., complete in all aspects, as specified in drawings and directed by the Engineer/Architect.</p>	Sqm	862.00		
8.2	ANTI SKID MATT FINISH VITRIFIED TILE FLOOR				
	<p>Providing and laying Anti-Skid Matt finish Vitrified tiles- 600mm x 600mm of approved make and shade to proper slope, line, level with Cement Mortar 1:6 (1 Cement :6 Coarse Sand) bedding of required thicknes to match FFL and neat cement float including filling the joints with white cement with approved pigment to match the colour of tile. Rate to include the cutting the tiles for floor traps,ducts and lids of electrical, computer and telephone wires and cleaning the same, curing etc.,complete in all aspects, as specified and directed by the Engineer/Architect</p> <p>(Basic Rate - Rs.600/- per Sqm.)</p> <p>(Approved makes- Kajaria, Asian, Somany, RAK, Jhonson or equivalent)</p>	Sqm	376.00		
8.3	GLAZED CERAMIC WALL TILE DADO				
	<p>Providing and fixing 1st quality ceramic glazed wall tiles 300X600mm conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade, necessary scaffolding, staging etc. complete in all aspects, as specified and directed by the Engineer/Architect.</p> <p>(Basic Rate - Rs.600/- per Sqm.)</p> <p>(Approved makes- Kajaria, Asian, Somany, RAK, Jhonson or equivalent)</p>	Sqm	3076.00		
8.4	ITALIAN MARBLE STONE FLOOR				

	Providing and laying 18 mm thick machine cut, mirror polished Marble stone flooring , in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. 18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc. (Basic Rate - Rs.5000/- per Sqm.)	sqm	242.00		
8.5	ITALIAN MARBLE STONE DADO/SKIRTING				
	Providing and fixing 18mm thick machine cut, mirror/ eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing, scaffolding, staging etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge. 18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc. (Basic Rate - Rs.5000/- per Sqm.)	sqm	253.00		
8.6	GRANITE STONE TREADS				
	Providing and fixing 18mm thick machine cut one-piece pre-polished Granite stone for treads of 320 mm width as per detailed drawings including moulding, bull nosing, chamfer with polishing, fixed in cement mortar 1:4 and neat cement floating to proper line, level and plumb, filling the joints with white cement including approved pigment to match the colour of marble slab including polishing, buffing, cleaning, curing etc. complete in all aspects and as directed by Architect/Engineer. Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent. (Basic Rate - Rs.2400/- per Sqm.)	sqm	173.00		
8.7	GRANITE STONE FLOOR				
	Providing and laying Pre- Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. (Basic Rate - Rs.2400/- per Sqm.)	sqm	946.00		
8.8	GRANITE STONE ON COUNTERS/CILL				
	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Granite stone slab colour black, Cherry/Ruby red (Basic Rate - Rs.2400/- per Sqm.)	Sqm	64.00		
8.9	GRANITE STONE ON RISERS/SKIRTING				
	Providing and laying pre-polished Granite stone slabs 18 mm thick of any colour in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 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 etc. complete in all aspects as per drawings and instructions of Engineer in charge. Granite stone slab colour black, Cherry/Ruby red (Basic Rate - Rs.2400/- per Sqm.)	sqm	270.00		
8.10	30 mm thick Red sand stone coping				
	Stone work (machine cut edges) for coping etc. (veneer work) upto 10 metre height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing and the sides by means of cramps and pins which shall be paid for separately) :				
	30 mm thick Red sand stone - Exposed face machine cut and table rubbed with rough backing.	Sqm	104.00		
8.11	Vacuum dewatered concrete flooring M-25				

	Providing and laying C.C. pavement (Tremix -Vacuum dewatered concrete flooring) 100 mm thick 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. in all basement parking areas, driveways etc. complete with proper curing as per specifications and directions of Engineer-incharge. Needle vibrator for compaction and low water : cement ratio shall be used. This shall ensure high compressive as well as tensile strength, abrasion resistance and prevent shrinkage of concrete. Floor hardener may be used for desired abrasion strength. Final brushing shall be made before the floor top becomes hard. Curing shall be carried out for minimum period of 1 week.	Cum	501.00		
8.12	GLASS REINFORCED CONCRETE EXTERIOR PAVER TILES				
	Providing and fixing of glass reinforced concrete (G.R.C) exterior paving tiles reinforced with Alkali Resistant glass fiber and the pigmentation should be done with Ultra Violet Resistant exterior grade Pigment synthetic inorganic iron oxide pigments in approved shade in sizes of 300 mm x 300 mm 22mm thick , allowing variance or dimensional tolerance of ±5 mm in accordance with IS: 1237-1980. The pigmentation should be homogeneous and in accordance with British standard BS EN 12878:1999. The other additives should be fine washed graded quartz, super plasticizers and integrated water proofers agents and others. Tiles should be laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge. (Basic Rate - Rs.900/- per Sqm.) (Approved makes- Unistone, Kingspan, Birla GRC, NTC tile or equivalent)	sqm	606.00		
8.13	ROAD MARKING STRIPS				
	Providing and applying 2.5 mm thick road marking strips (retroreflective) of specified shade/ colour using hot thermoplastic material by fully/ semi automatic thermoplastic paint applicator machine fitted with profile shoe, glass beads dispenser, propane tank heater and profile shoe heater, driven by experienced operator on road surface including cost of material, labour, T&P, cleaning the road surface of all dirt, seals, oil, grease and foreign material etc. complete as per direction of Engineer-in-charge and accordance with applicable specifications.	sqm	63.00		
9. ROOFING & FALSE CEILING					
9.1	Heat Resistant Terrace Tiles				
	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 10mm) on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1 complete, including providing skirting upto 150 mm height along the parapet walls in the same manner. (Basic Rate of tiles- Rs. 500/- per Sqm) (Approved makes- Somany Tempshield, Unistone, Kajaria or equivalent)	Sqm	1535.00		
9.2	GI Metal Ceiling				
	Providing and fixing tiled false ceiling with 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 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 in true horizontal level, suspended on inter locking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38 mm made from 0.30 mm thick (minimum) sheet, spaced at 1200 mm center to center and cross "T" of size 24x25 mm made of 0.30 mm thick (minimum) sheet, 1200 mm long spaced between main "T" at 600 mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600 mm and size 24x25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600 mm panel to form grids of 600x600 mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, 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 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200 mm 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 for all heights including staging, scaffolding etc. complete as per specifications, drawings and as directed by Engineer-in-charge. (Approved makes- Armstrong, Durlum, Hunter Douglas or equivalent)	Sqm	376.00		
10. FINISHING WORKS					
	Note: The joints of all Masonry and RCC surfaces shall be treated with Chicken mesh nailed with M.S. nails with atleast 75mm width on either type of surfaces making the total width of 150mm prior to take up plastering works. Cost of chicken mesh netting to be included in rates quoted for plaster works, at all joints of brick and concrete surfaces, with a minimum overlap of 100 mm in all directions and curing complete. No extra payment shall be made for additional thickness if required to achieve perfect line and level.				

10.1	INTERNAL PLASTER				
	Providing and applying average 12mm thick cement plaster in a single coat in cement mortar 1:4 without neeru finish with Natural sand to concrete or brick surface in all positions, heights & leads including providing fibre-mesh / chicken mesh at joints of brickwork and concrete and making good the chase cut for the purpose of electrification / plumbing, filling all gapes along the wooden door frames, Making moist the surface before plastering & curing the plaster surface for minimum 7 Days, scaffolding etc. complete as directed by the Architect/ Engineer in charge.	Sqm	11136.00		
10.2	EXTERNAL PLASTER				
	Providing and applying single coat average 15 mm thick smooth face finish cement plaster in cement mortar (1 cement : 4 coarse sand) including approved waterproofing compound (Sikka / DrFixit or equivalent) in the proportion approved by the manufacturer of the said waterproofing compound and in proper line, level, plumb with grooves, bands, drip moulds, curing, scaffolding etc as required at all heights and locations complete in all respects and as per instructions of Architect/Engineer. (Location : External side of masonry walls, parapet walls, all shafts inner side.)	Sqm	4768.00		
10.3	CEILING/RCC PLASTER				
	Providing and applying average 6mm thick smooth finish cement plaster with cement mortar (1 cement :3 fine sand) on ceilings, staircase, roofs etc. in proper level at all heights & leads to concrete surface in all positions including necessary scaffolding, racking out joints, hacking, Making surface moist before plastering, curing etc. complete in all respects and as per instructions of Architect/Engineer in charge.	Sqm	9396.00		
10.4	EXTERIOR EMULSION PAINT				
	Providing and applying 2 or more coats of water based 100% Apex weatherproof exterior emulsion paint of Asian, Dulux, Berger or equivalent approved make and shade having low VOC content less than 50grams/ litre & UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives to concrete and plastered surfaces,ceilings, etc., with roller finish including preparing surfaces, applying primer, scaffolding, etc. after thoroughly brushing the surface to remove all the dirt and all loose powder free from mortar dropping and other foreign material and sand paper smooth etc, at all heights and locations complete in all respects and as per instructions of Architect/Engineer.				
	New work (Two or more coats applied @ 1.43 litre/ 10 sqm. Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm. (Approved makes- Asian paints Apex Ultima, Nerolac XL Total, Berger Weather coat all guard, Dulux Ultra clean Max, or equivalent)	sqm	5850.00		
10.5	INTERIOR EMULSION PAINT				
	Providing and applying 2 or more coats of water based 100% Acrylic premium emulsion paint interior grade of Asian, Dulux, Berger or equivalent approved make and shade having zero VOC & UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives to concrete and plastered surfaces,ceilings, etc., with roller finish including preparing surfaces ,applying 01 or more coats of putty of required thickness over plastered surface & applying primer including scaffolding, etc. after thoroughly brushing the surface to remove all the dirt and all loose powder free from mortar dropping and other foreign material and sand paper smooth etc, at all heights and locations complete in all respects and as per instructions of Architect/Engineer. (Approved makes- Asian paints, Nerolac , Berger, Dulux or equivalent)	sqm	20532.00		
11. WATER PROOFING					
	Note:				
	1)The rate shall include all materials & labours as mentioned in item including water curing for three days (where required), cleaning etc. complete as per specifications and directions of Engineer-in-Charge.				
	2)The work shall be got executed from the specialized agencies like Asian paints, Dr. fixit/ pidilite, BASF or equivalent as approved by the Engineer-in Charge.				
	3)The work shall be done under manufacturer's supervision, by manufacturer's recommended applicator and shall be backed by manufacturer's warranty.				
	4) The work shall be done all as per manufacturer's specification and instruction.				
	5)The rate quoted shall include all the cost of materials, labour, transportation, testing for water tightness, furnishing necessary guarantee of minimum 10 years for waterproofing so provided.				
11.1	Basement Waterproofing -Beneath Raft				
	SELF ADHESIVE PRESSURE SENSITIVE PRE APPLIED PREFORMED 1.2 MM THICK HDPE MEMBRANE				

	Supplying and installing of composite 1.2mm thick (bare hdpe membrane thickness >0.8 mm) pre-applied HDPE membrane that can be adhered with HDPE 80 Tapes or can also be heat weld. The pre-applied, fully bonded HDPE sheet membrane shall be loosely laid on PCC and gets bonded to the underneath of the poured concrete of foundation. The membrane shall have minimum of 75mm side laps and end laps which shall be sealed with double sided adhesive tape. The work shall be done by manufacturer's recommended applicator and shall be backed by manufacturer's warranty complete all as per manufacturer's specification and instruction.	Sqm	3366.00		
11.2	Basement Waterproofing – Retaining Walls				
	SPRAY APPLIED FAST SETTING LIQUID HYBRID POLYUREA MEMBRANE				
	Supplying and applying two component fast setting hybrid polyurea-polyurethane Antirroot waterproofing liquid membrane over the prepared surface of concrete, primed with epoxy primer@250gm/sqm. The system includes application of 1 coat of epoxy primer & application of 2 or more coats of hybrid polyurea-polyurethane liquid membrane to achieve overall DFT of >1.5 mm with the help of brush/roller or spray. The work shall include surface preparation, cleaning, grinding, bore packing, crack repair, injection grouting if required etc. complete all as per manufacturer's specification and instruction including providing & laying high density polyethylene (HDPE) dimpled protection and drainage sheet; over the waterproofing membrane on the retaining walls. The protection and drainage sheet shall consist of dimpled HDPE sheet with fused on hydrophilic polypropylene geotextile complete all as per manufacturer specifications.	Sqm	1725.00		
11.3	Wet Areas & Bathroom waterproofing				
	Supplying and applying two component elastomeric acrylic polymer modified cementitious waterproofing coating. The mixing ratio of the coating shall be 3 parts of powder & 2 part of liquid without any water addition in the mixing etc. complete all as per manufacturers specifications. The work shall include surface preparation, cleaning, grinding, bore packing, crack repair, injection grouting if required etc complete all as per manufacturer's specification and instruction including loosely lay 40 GSM Geotextile (non-woven polyester) with a min of 100mm wide overlap and laying slope making and protection to the waterproofing treatment with 30 mm avg. thick M20 grade screed for floors and providing and applying 15 mm thick with CM 1:4 for wall plastering admixed with PC based integral waterproofing compound, etc. complete, as per manufacturer's specifications (Only plan area of washrooms will be measured for payment purpose)	Sqm	257.00		
11.4	Terrace Waterproofing includes:				
	Supplying and applying High build elastomeric waterproofing coating based on Polyurea cold spray applied . The work shall includes surface preparation, cleaning, grinding, bore packing, crack repair, injection grouting if required etc. complete all as per manufacturer's specification and instruction including the following processes complete in all aspects:	Sqm	1632.00		
	Minor cleaning work, removal of loose concrete and filling cracks with polymer modified mortar using smartcare SRP. Making of angle fillets all around the periphery of the wall with polymer modified mortar using smartCare SRP. Supplying & grouting the gaps around the pipe / inserts with SmartCare General Purpose Grout, a non shrink cementitious waterproof grout. The "Nahani" trap, etc is to be fitted securely in the same manner & the gaps around it to be grouted with non shrink Grout. Providing 3 coats of SmartCare PU Magnum and 40-50 GSM polyester fleece sandwiched between 1st and 2nd coats completely up to the top edge of the pipe etc. complete as per manufacturer's instructions. Then, Application of Main Waterproofing Treatment over Mother Surface.				
	Supplying and applying High performance fast setting elastomeric, spray applied SmartCare Hypertron Hybrid Polyurea, a liquid applied membrane with an elongation of 600% and tensile strength of more than 15 N/mm2 as per ASTM D 412, shore A Hardness of min. 85 as per ASTM D 2240, and crack bridging ability of 4.5 mm as per EN 1062, Taber Abrasion - 1KG, CS 17 ASTM D 4060 Mg 40mg/1000 cycle, Skid Resistance ASTM E 274 60 and Elongation recovery ASTM D 412 99%. The system includes final base preparation, epoxy primer application and applying SmartCare Hypertron Hybrid or approved equivalent in min. two coats to achieve a min. thickness of 1.5 mm, etc., complete as per Manufacturer specifications.				
	Loosely lay 150 GSM Geotextile (non-woven polyester) with a min of 100mm wide overlap. Laying protective screed of M10 grade with slope 1:100 containing 12 mm, 100% virgin polypropylene fibers @ 0.9 Kg per Cu. Mt with a plain finish, well compacted, cured for atleast 7 days etc. complete. The screed shall be laid in panels 2mx2m with 10mm wide & deep construction joint and filling the panel joints with pour grade Polysulphide Sealant. The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer-in-Charge. (Only plan area of terraces will be measured for payment purpose)				
11.5	Over Head /Under Ground Potable Water Tanks Waterproofing includes:				
	Supplying and applying two coats of Epoxy Stearate based coating on RCC surface with a consumption of 4-6sqm/kg/coat. The work shall includes surface preparation, cleaning, grinding, bore packing, crack repair, injection grouting, scaffolding if required etc. complete all as per manufacturer's specification and instruction including the following processes complete in all aspects:	Sqm	438.00		

	When the final coat is wet, sand to be sprinkled over the surface to make it rough. Over final coat, providing and laying 25mm thick cement plaster in two coats(total thickness 25mm) admixed with SmartCare Vitallia at 100 ml per bag of cement complete all as specified and as directed.				
11.6	Podium Waterproofing - Landscaping/Hardscaping				
	SPRAY APPLIED FAST SETTING LIQUID HYBRID POLYUREA MEMBRANE				
	Supplying and applying two component fast setting hybrid polyurea-polyurethane Antirroot waterproofing liquid membrane over the prepared surface of concrete, primed with epoxy primer@250gm/sqm. The system includes application of 1 coat of epoxy primer & application of 2 or more coats of hybrid polyurea-polyurethane liquid membrane to achieve overall DFT of >1.5 mm with the help of brush/roller or spray. The work shall include surface preparation, cleaning, grinding, bore packing, crack repair, injection grouting if required etc. complete all as per manufacturer's specification and instruction including the following processes complete in all aspects:	Sqm	1503.00		
	Loosely lay 150 GSM Geotextile (non-woven polyester) with a min of 100mm wide overlap i.e spot bonded with an adhesive				
	Laying protective screed of M20 grade with slope 1:100 containing 12 mm, 100% virgin polypropylene fibers @ 0.9 Kg per Cu. Mt with a broom finish, well compacted, curing for 7 days etc. complete.				
11.7	Water Bars				
	Providing & fixing hydrophilic expanding swellable Water Bars fixed with adhesive on all construction joints of tank walls before placing the shuttering for new concrete all complete as per IS code and instructions of Engineer in charge.	Sqm	153.00		
12. Road Work					
	Note:				
	1)The rate shall include all materials & labours as mentioned in item including water curing for three days (where required), cleaning etc. complete as per specifications and directions of Engineer-in-Charge.				
12.1	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 earthwith lead upto 50 metres.	Sqm	1188.00		
12.2	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.				
	With material conforming to Grade-I (size range 75 mm to 0.075 mm) having CBR Value-30	Cum	165.00		
12.3	Wet Mix Macadam (WMM)				
	Providing, laying, spreading and compacting graded stone aggregate (size range 53 mm to 0.075 mm) to wet mix macadam (WMM) specification including premixing the material with water at OMC in for all leads & lifts, laying in uniform layers with mechanical paverfinisher in sub- base / base course on well prepared surface and compacting with vibratory roller of 8 to 10 tonne capacity to achieve the desired density , complete as per specifications and directions of Engineer-in-Charge.	Cum	119.00		
12.4	Cobble Stone				
	Providing, supplying & laying of glass reinforced concrete (G.R.C) exterior paving tiles in 'Cobblestone' finish in approved shade in sizes of 152 mm X 152 mm. The thickness of the tiles should range between 20 to 22 mm , allowing variance of ± 5mm in accordance with IS: 1237- 1980. The tiles should be made with M- 40 Grade concrete mix design having '43' grade Portland cement, reinforced with Alkali Resistant glass fibre and the pigmentation should be done with exterior grade synthetic inorganic iron oxide pigments with high vibration technology. The tiles should be of M-40 grade. The top surface of the tiles should be treated with acrylic lacquer, The beds where tiles are to be laid should be clean, debris free, wet and mopped. The tiles should be laid over RCC basement slab with cement mortar of 20mm thickness made with (1:3) (1Cement: 3Coarse Sand), adequate grooves should be maintained between 8- 10mm using spacers and pointing work to be done with 1:3 (Cement: Fine Sand) mix. (Basic cost of tile = Rs. 1500 per Sqm) (Approved makes- Unistone, Eurocon, Dazzel or equivalent)	Cum	1982.00		
12.5	Kerb-Stone				
	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete (of approved make) 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 at sharp curve shall not to more than 5 mm), including painting with two or more coats of jotun/ Asian /Dulux kerbstone paint of alternate balck & white strips, making necessary drainage openings wherever required complete in all aspects as per direction of Architect/ Engineer .Note:- Length of finished kerb edging shall be measured for payment. Precast CC kerb stone shall be approved by Engineer in charge. (Approved makes- NTC tiles, Vyara Tiles, Super Tiles or equivalent)	Cum	27.00		
TOTAL FOR CIVIL & STRUCTURAL WORKS					0.00
	GST extra as applicable				

CONSTRUCTION OF SBI AO BUILDING AT IT PARK DEHRADUN

ONLINE SEALED PRICE BIDDING- PLUMBING WORKS

S. No.	Description of Item	Unit	Qty	Rate	Amount
A	Sanitary Installations & Internal Water Supply				
1	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required :				
	Kitchen sink with drain board 510x1040 mm bowl depth 200 mm ;[Make :Jayna, Model: SBSD 09 A, Make - Nirali Model - Elegance]. or approved equivalent.	Each	9		
2	Providing and fixing mirror of superior glass (of approved quality) complete with aluminium / SS angle cleats with C.P. brass screws and including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge. .	sqm	33		
3	Providing and fixing P.V.C. Waste pipe for sink or wash basin including P.V.C. waste fittings complete.				
	40 mm dia. Semi rigid pipe	Each	9		
4	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model :EBT32-CP / Make - Jaquar Model - ALD-769L250X190]. Or equivalents	Each	58		
5	Providing and fixing -SS304, Chrome Plated toilet paper holder including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model :ACC08/ Make - Jaquar Model - AKP-35751P]. or approved equivalent.	Each	66		
6	Providing and Fixing of vitreous china single trap syphonic pattern having back inlet, supporting chair wall hung water closet with flush valve and CP brass flush bend (European type) Wall Hung water closet with soft seat cover and lid, with Concealed cistern Dual Flush - 3 litre and 6 Litre, C.P. brass hinges and rubber buffers, adapter, rubber joints fixed to W.C., C.P. brass screwed washers including cutting and making good the walls and floors wherever required and HDPE wc pan connector including jointing with white cement complete in all respects all as per manufacturers specification and direction of Engineer-in-charge. [Make :WC Euronics, Model: C004-WC, Cistern Make :Euronics, Model: ECC03HA / mAKE - Jaquar Model - CNS-WHT-961SPP, Cistern - Model - JCS-WHT-2431FP]. or approved equivalent.	Each	60		
7	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931 including cutting & making good the walls.and as per the direction of Engineer-in-charge.				
	15 mm nominal bore . [Make :Euronics, Model :RIV-1010R/ Make - Jaquar Model - FLR 5047N]. or approved equivalent.	Each	66		
8	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 including cutting & making good the walls.and as per the direction of Engineer-in-charge.				
	15 mm nominal bore [Make :Euronics, Model : RIV-1003R/ Make - Jaquar Model - FLR 5063N].or approved equivalent.	Each	182		

S. No.	Description of Item	Unit	Qty	Rate	Amount
9	Providing and fixing white color vitreous China flat back, above counter wash basin with R.S. or CI bracket and 32 mm dia outlet, with brass C.P. wall cap and extension pieces, 15 mm CP Brass single hole basin mixer, 15 mm dia C.P. brass angle stop cock with 10mm dia C.P. brass connection pipe etc. CP brass chain, CP wall flange, rubber adopter for waste connection complete, CP brass chain CP waste and CP pipe to wall with CP wall flange and rubber adopter for waste connection complete, with pedestal of matching model below wash basin, including cutting and making good the walls wherever required. [Make WB :Euronics, Model: C005-WB, Basin Mixer Make - Euronics, Model -ORL-2001D/ Make Jaquar Model - FLS-WHT-5935, Mixer - FLR-5001B] or approved equivalent.	Each	52		
10	Providing and fixing uplasticised PVC connection pipe (45 cm length) with brass unions : 15 mm nominal bore	Each	116		
11	Providing and fixing C.P. cast brass twin coat hooks fixed to PVC rawl plug with SS screws including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model : EC02/ Make - Jaquar Model - ACN-1161N].or approved equivalent.	Each	58		
12	Providing and fixing of ABS health Faucet which can tolerate water pressure up to 6 bar flow pressure with metal hose and holder in Polished Chrome including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model : EHF01/ Make - Jaquar Model - ALD-587].or approved equivalent.	Each	66		
13	Providing, fixing, testing and commissioning of CP brass swan neck wall mounted sink mixer with wall flange and swinging casted spout complete as required and making good the walls wherever required including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model:FLO-3012A / Make - Jaquar Model - FLR-5165].or approved equivalent.	Each	9		
14	Providing and fixing SS-304 towel ring fixed with C.P. brass screws complete in all respects including cutting & making good the walls.and as per the direction of Engineer-in-charge. [Make :Euronics, Model: ACC03 / Make - Jaquar Model - AQN-7221].or approved equivalent.	Each	43		
15	Supply, installation, testing and commissioning liquid manual soap dispenser with stainless steel lid and brackets fixed to wooden cleats with C.P. brass screws [Make :Euronics, Model: ES23 / Make - Jaquar Model - SDR-WHT-DJ0010F].or approved equivalent.	Each	48		
16	Providing and fixing urinals WITH CONCEALED SENSOR (BATTERY + ELECTRICAL OPERATED) siphon and concealed C.I. brackets, brass C.P. supply and flushing connections with 1 NO. 15 mm Dia. Brass C.P. angle type stop cock with brass C.P. wall cap, with C.P. waste coupling with C.P. wall caps brass CP cones at inlet and outlets concealed lead pipes drains form bottle trap drain pipes in floor. Joining etc complete. [Make :Euronics, Model :KINOX-P KUF].or approved equivalent.	Each	15		
17	Providing and Fixing of stainless steel fully automatic "No Touch" hand drier suitable to operate on 220 volts, single phase 50 hz., A.C. power supply. [Make :Euronics, Model: EH26NW / Make - Jaquar Model - HDR-SSF-AK2807].or approved equivalent.	Each	20		

S. No.	Description of Item	Unit	Qty	Rate	Amount
18	Supply, installation, testing and commissioning of white color vitreous china single trap symphonic pattern having back inlet, supporting chair, wall hung water closet with china ware cistern and CP brass flush bend (European type) with seat and lid "Thermoset moulded (bakelite) IS 2548 Part I, with C.P. brass hinges and rubber buffers, adapter, rubber joints fixed to W.C., C.P. brass screwed washers and rectangle handicraped wash basin with CP waste coupling of standard pattern, 32 mm dia C.P. cast brass bottle tarp & union, 32 mm dia C.P. pipe to wall and C.P. wall flange, pillar tap and all type of suitable grab bar and brackets complete as per manufactures deatil including cutting and making good the walls and floors wherever required and HDPE wc pan connector including jointing with white cement complete in all respects.				
	P & F in position 1st quality glazed vitreous chinaware, wall hung type E.W.C. including solid plastic seat cover of matching color with brass hinges, required bracket & rag bolts, brass screws, S.S. jet spray, bib cock, 15 mm diameter C.P. angle cock, CI chair bracket, Cistern etc. The entire toilet shall be furnished from the Speical needs range as per the supplier detailed The Set includes one piece EWC 710 x 370 x 770 mm S trap 300 mm with Soft close seat cover, Wall hung wash basin 665 x 545 x 190 mm, Single lever clinical faucet, 2 no. Wall mounted grab bars 600 mm long, Wall mounted hinged hand rail 750 x 100mm. (Special needs bathroom Set - Make :Cera, Model : Cruse set S1013200, Jaquar, Hindware or equivalent).	Each	6		
	Soil, Waste, Vent & Rain Water Pipes				
19	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 1mx1mx400micron, finished with 12mm 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	11		
20	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	Each	11		
21	Providing and fixing Hubless centrifugally cast iron pipe (IS 15905) soil and waste water including all fittings (plain or door) e.g. bends, paint, junctions,terminal guard, cowls, offsets, floor clean out plug, end cap, access pieces jointing with SS 304 grade coupling with EPDM rubber gasket including fixing the pipe on the wall/ceiling with suitable clamps ,holder bat clamps and anchor fastener of approved design to sand cast iron (spun) pipe embedded, cement concrete block 10x10x 10 cm of 1:2:4 (1 cement: 4 coarse sand: 4 graded stone aggregate 20 mm nominal size), cutting holes in wall and floors, excavation, refilling and disposal of surplus earth where required and marked good complete etc. and as per direction of Engineer in Charge. [Make : HEPCO].				
	100mm dia Hubless centrifugally cast iron pipes epoxy coated inside & outside IS : 15905	Metre	859		
22	Providing and fixing trap of self cleansing design with screwed down or hinged with or without vent arm complete, including cost of cutting and making good the walls and floors.				
a	100 mm inlet and 100 mm outlet				
	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	Each	87		
b	100 mm inlet and 75 mm outlet				
	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	Each	26		

S. No.	Description of Item	Unit	Qty	Rate	Amount
23	Providing and fixing SS grating of approved quality and colour. Circular type 125 mm nominal dia [Make :Euronics, Model: EFG03-55C].	Each	113		
24	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. For sump riser pipe 80 mm dia nominal bore	Metre	50		
25	Providing and fixing of uPVC Waste pipes 6 kg/cm2 (IS: 4985:2000) including with all fittings e.g. couplings, tees, bends, reducers and screwed adoptors jointing with solvent cement as per Manufacturer's specifications complete including cutting holes or chases in wall and making good the same wherever required. For WB, Urinal FT & FD and Sink Drain pipe				
a	40 mm diameter	Metre	120		
b	50 mm diameter	Metre	80		
26	Providing and fixing of uPVC Waste pipes 6 kg/cm2 (IS: 4985:2000) including with all fittings e.g. couplings, tees, bends, reducers and screwed adoptors jointing with solvent cement as per Manufacturer's specifications complete including cutting holes or chases in wall and making good the same wherever required. (For Rain water pipe & BASEMENT DRAIN)				
a	160 mm diameter	Metre	409		
b	110 mm diameter	Metre	88		
27	Providing & fixing of F.R.P. Grating (Heavy Duty) for channel drains including all accessories complete capable to bear 10.0 T Load.				
a	488 wide x 30mm thk. - Drain Cover	Metre	193		
	Internal Water Supply				
28	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge				
	Internal Work - Exposed on Wall				
a	25 mm nominal outer dia .Pipes.	Metre	174		
b	32 mm nominal outer dia .Pipes.	Metre	87		
c	40 mm nominal outer dia .Pipes.	Metre	26		
29	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m 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 walls etc.				
a	20 mm nominal outer dia .Pipes.	Metre	1262		
b	25 mm nominal outer dia .Pipes.	Metre	37		
30	Providing and fixing G.I. pipes with two coats of anti-corrosive bitumastic paint of approved quality : complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on Wall				
a	15 mm dia nominal bore	Metre	72		
b	20 mm dia nominal bore	Metre	156		

S. No.	Description of Item	Unit	Qty	Rate	Amount
31	Providing, laying, testing & commissioning of 'B' class heavy duty G.I. pipe conforming to IS 1239 including welding, fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
a	25 mm dia nominal bore	Metre	245		
b	32 mm dia nominal bore	Metre	203		
c	40 mm dia nominal bore	Metre	103		
d	50 mm dia nominal bore	Metre	77		
e	65 mm dia nominal bore	Metre	16		
f	80 mm dia nominal bore	Metre	60		
32	Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm 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 :				
a	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	Each	2		
33	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Litre	50000		
34	Making core cutting (machine) up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete so as to make it leak proof	Each	147		
35	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
a	25 mm nominal bore	Each	24		
b	32 mm nominal bore	Each	21		
c	40 mm nominal bore	Each	4		
d	50 mm nominal bore	Each	3		
e	65 mm dia	Each	1		
f	80 mm dia	Each	2		
36	Providing and fixing gun metal non- return valve of approved quality (screwed end) :				
a	50 mm nominal bore	Each	1		
b	80 mm nominal bore	Each	1		
37	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.				
a	15 mm nominal bore	Each	58		
b	20 mm nominal bore	Each	25		
38	Providing and fixing forged brass single acting air release valve with screwed inlet 25 mm dia.	Each	21		

S. No.	Description of Item	Unit	Qty	Rate	Amount
39	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete .:				
a	25 mm nominal bore	Each	2		
B	External Water Supply				
1	Providing and fixing G.I. pipes with two coats of anti-orrosive bitumastic paint complete with G.I. fittings including trenching and refilling etc.				
	External work				
a	25 mm dia nominal bore	Metre	5		
b	50 mm dia nominal bore	Metre	5		
c	80 mm dia nominal bore	Metre	40		
d	100 mm dia nominal bore	Metre	80		
2	Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :				
a	25 mm dia nominal bore	Metre	5		
b	50 mm dia nominal bore	Metre	5		
c	80 mm dia nominal bore	Metre	40		
3	Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm 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 :				
a	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	Each	1		
4	Constructing masonry Chamber brick work with common burnt clay F.P.S.(non modular) bricks of class designation 150 in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :				
a	60 x 60 x 75 cm inside	Each	2		
5	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required				
a	65 mm dia	Each	1		
b	80 mm dia	Each	1		
c	100 mm dia	Each	2		
6	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
a	25 mm nominal bore	Each	4		
b	50 mm nominal bore	Each	1		

S. No.	Description of Item	Unit	Qty	Rate	Amount
7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. (Irrigation System.)				
a	32 mm nominal outer dia Pipes	Metre	20		
b	50 mm nominal outer dia Pipes	Metre	260		
8	Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :				
a	50 mm dia nominal bore	Metre	260		
9	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				
a	50 mm dia	Each	2		
b	65 mm dia	Each	4		
c	80 mm dia	Each	4		
10	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
a	50 mm dia	Each	4		
b	65 mm dia	Each	2		
c	80 mm dia	Each	4		
11	Providing, installation, testing and commissioning of stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.				
	80 mm dia.	Each	2		
C	External Sewerage System				
1.0	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
a	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	Metre	160		
3	Fixing SW Gully Trap Grade A Complete CI Grating, brick masonry chamber and water tight CI cover frame of 300 x 300 mm size (inside) square mouth traps or "P" or "S" Type Traps.				
a	180 x 150 mm dia.	Each	2		
4	Constructing brick masonry manhole in cement mortar 1:1 (1 cement : 1 coarse sand) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone- III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone- III) : 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 :				
a	(A) 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) : With Sewer bricks conforming to IS : 4885	Each	1		

S. No.	Description of Item	Unit	Qty	Rate	Amount
b	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg)				
	With Sewer bricks conforming to IS : 4885	Each	8		
5.0	Extra over item No. 25.4 for every additional depth of 0.10 m. or part there of manhole.				
a	Extra for depth for manholes				
	Size 90x80 cm				
	With Sewer bricks conforming to IS : 4885	metre	1		
b	Size 120x90 cm				
	With Sewer bricks conforming to IS : 4885	metre	3		
6	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	40		
7	Providing and laying non-pressure NP2 class (light duty) RCC 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. (for storm drainage)				
a	150 mm dia RCC pipe	Metre	5		
b	250 mm dia RCC pipe	Metre	160		
8	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up to haunches of RCC. pipes including bed concrete as per standard design :				
a	150 mm dia RCC pipe	Metre	5		
b	250 mm dia RCC pipe	Metre	160		
9	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 for pipes 100 to 230mm dia	EACH	1		
D	Storm Water Drainage System				
1.0	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
2.0	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	Metre	265		

S. No.	Description of Item	Unit	Qty	Rate	Amount
4	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design :				
a	150 mm diameter	Metre	50		
b	250 mm diameter	Metre	90		
c	300 mm diameter	Metre	125		
3	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	33		
4	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 :				
a	150 mm dia. R.C.C. pipe	Metre	50		
b	250 mm dia. R.C.C. pipe	Metre	90		
c	300 mm dia. R.C.C. pipe	Metre	125		
5	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone-III) : 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 :				
a	Inside size 120x90 cm and 100 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg)				
	With Sewer bricks conforming to IS : 4885	Each	11		
6	Constructing brick 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				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	10		
7	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 for pipes 100 to 230mm dia	EACH	1		
	RAIN WATER HARVESTING PIT				
8	Providing, supplying, fixing and executing Rooftop Precast Modular Step Well Rainwater Harvesting System complete in all aspects including the following :	Sets	2		

S. No.	Description of Item	Unit	Qty	Rate	Amount
a	Supply & installation of Horizontal Filtration module (HFM-4F-3475) which is Precast Modular Step well of M25 grade, designed to capture sediments primarily from surface runoff water. This Octagonal shape structure has a circumscribing diameter of approximately 1500mm and a height of 3475mm. A part of the top module is usually kept above the ground however same can be flushed with ground.300/400/610 mm are the available height options in case part of it has to be kept above the ground level. Top module accommodates indigenously designed Four-Filters Array to capture sediment effectively within the Horizontal Filtration Module. This easily removable array filters can be cleaned within or outside the module using pressurized water. Total filtration area of these filter is approximately 6000cm ² . Bottom module capacity of the HFM is 30M ³ per hour. Horizontal Filtration Module is used primarily to trap sediments from surface runoff water or water with heavy sediments and is installed prior to the Sand Filtration Module (SFM - 3475). The inlet & outlet of HFM-4F-3475 is 160mm diameter UPVC pipes.				
b.	Supply & Installation of Furaat Sand Filtration Module (SFM-3475) is an M-25 grade Precast Modular step well designed to capture sediments from Roof & paved surface runoff water. This Octagonal shape structure has a circumscribing diameter of approximately 1500mm and a height of 3475mm. A part of the top module of SFM-3475 is usually kept above the ground however same can be flushed with ground.300/400/610 mm are the available height options in case part of it has to be kept above the ground level. Each slab should have 1075mm x 550mm x 40mm thick. Eight vertical pre cast slabs held together between two horizontal pre cast octagonal slabs(with 590mm edge length, 50mm thick and hole of 100 mm diameter in the center. Bottom module holds another type of filter media in the form of sand bed around a continuous slot fine aperture stainless screen(420mm diameter and 300 or 450 mm length). Screen is fixed to the bottom slab and is fully covered by filtration sand. Screen creates entry points for the filtered water. Module filtration capacity & testing upto 20m ³ to 30m ³ per hour from modular systems only. This module is used for Roof water harvesting and it is connected with the existing tubewell/recharge well/UG storage tank.				
c.	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including all pipes, strainers, slotted pipes, fittings etc., collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer –in-charge, up to minimum 60 metre depth below ground level to be used as Recharge well.				
d.	Providing & fixing flow meter for measuring the recharged water.				
e.	Excavation & PCC for Base as per drawing				

S. No.	Description of Item	Unit	Qty	Rate	Amount
f.	Transportation				
	(Make: Furaat, Bantair or equivalent)				
E	Tubewells				
1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
	1:2:4 (1cement : 2 Coarse sand : 4 graded stone aggregate 20 mm nominal size)	Cum	1		
2	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer –in-charge, upto 90 metre depth below ground level.				
a	All types of soil				
b	300 mm dia	Metre	90		
3	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer –in-charge, beyond 90 metre & upto 150 metre depth below ground level				
a	All types of soil				
b	300 mm dia	Metre	60		
4	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.				
		Cum	15		
5	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge				
a	100 mm nominal size dia having minimum wall thickness 5.00 mm	Metre	90		
6	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.				
a	100 mm nominal size dia	Metre	60		

S. No.	Description of Item	Unit	Qty	Rate	Amount
7	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	Hour	8		
8	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of: 100 mm dia	Each	1		
9	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete. a 100 mm dia	Each	1		
10	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I). a 100 mm dia	Each	1		
11	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required : 100 mm dia	Set	1		
12	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS:5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required : 100 mm dia	Set	1		
13	Supply, Lowering, installation & testing of KSB make submersible pumping set with 3.7 HP to 5.0 HP motor 4/5 stage pump suitable for 45-60 m ³ hr. at 60 to 100 mtr. Head respectively. With Three Phase. And submersible aluminium cable 10 sq.mm. from submersible pump to panel board with Panel Board for submersible pump fitted with DOL starter ammeter, voltmeter single phase preventer standard/indo/cop make MCB of off switch push bottom duly wired and made out of 16/18 SWG sheet.	Each	1		
TOTAL FOR PLUMBING WORKS					0.00
GST extra as applicable					

PROJECT:- SBI A'O PROJECT & VARIOUS OUTFITS PLOT NO-3, IT PARK AT DEHRADUN

EXTERNAL ELECTRIFICATION WORKS - ONLINE SEALED PRICE BID

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
	HT System				
1	11KV TWO POLE STRUCTURE				
	Supply, installation, testing & commissioning of 2 pole structure with cross arms, suitable clamps, insulators, disc insulators, 11KV lightning arrestors, complete stay with insulator & wire, foundations, gang operated air break switch with drop out fuses. This shall have termination arrangement for incoming & outgoing through cable and necessary 6 inches dia GI pipe shall be provided for cable support.	Nos.	1		
2	METERING INDOOR UNIT				
	Supply of Indoor metering unit with assembling, wiring, connecting, testing and commissioning of cubicle type 11KV metering panel fabricated out of 14 gauge CRCA sheet steel, free standing floor readable dust and vermin proof with arrangement for sealing the covers and doors, reinforcement of suitable size angle iron, channel T section or flats wherever necessary. Cable gland plate shall be provided on bottom of the metering panel. Panel shall be treated with all anti corrosion process before powder coating. panel comprises of the following: (Approved as per State Electricity Board)				
	7.5A 5VA 0.5 class indoor type cast resin CT { Suitable for 1200 KW (MD)} -3No.				
	3 Phase 11KV/110 Volt, PT, Class 0.5, 50 VA burden Cast resin dry type PT - 1No.				
	(Meter to be supplied by SEB) digital electronic trivector meter with MDI accuracy 0.5 -1No.				
	TTB with wiring				
	CT & PT to be tested & approved by State electricity authority				
	Metering unit shall be approved for installation for local electricity authority.				
	(FINAL CT RATIO SHALL BE FINALIZED IN CONSULTATION WITH SEB)	Nos.	1		
3	Outdoor HT load break switch				
	Supply, Installation, Testng & commitioning of HT load break switch with operating mechanism complete with outdoor enclosure suitable upto 11KV 3 core 240sqmm 'AL' XLPE incoming & outgoing cable termination complete in all respect.	Nos.	1		
4	11KV 3VCB PANEL BOARD INDOOR TYPE				
	Design, manufacturer, supply of panel board fabricated out of minimum 2 mm thick sheet steel as per specifications. The panel shall be complete with cable termination arrangement suitable for incoming and outgoing each 1 run x 3C x 240/300 Sqmm XLPE 11 KV cable and copper bus bar arrangement. The panel shall comprise of the following:				
	Three Panel Board (1 INCOMERS + 2 OUTGOING)				
	Incomer:-				
a)	1 No. 11kv 630A 25kA drawout type VCB with motorised spring charge mechanism for 240V AC, closing & tripping coils suitable for 24V DC				
	Each incomer comprising with following accessories.				
b)	1 No. Mechanical ON/OFF Indicator				
c)	1 No. Aux Switch 6NO + 6NC				
	Panel, Busbar, CT, PT				
a)	1 No. Fully compartmentalised sheet steel enclosure floor mounting type with automatic safety shutters, independent pressure discharge flaps, PVC sleeved busbar, etc with provision for terminating PVC/PILC/XLPE Cable				
b)	3 Nos. Resin Cast CTs 100/1-1A with Core 1 : 7.5VA CL 1 Core 2 : 7.5VA CL 5P10				
c)	3 Nos. PT - 11kv/√3//110/√3V ,CL 1.0, 50VA				
	Breaker Panel indication Lamps :				
a)	6 Nos. ON/OFF/TRIP/TRIP Ckt Healthy/Spring Charged				
	Switches and other Accessories				
a)	8 nos.Fuses				
b)	1 No. Heater				
c)	1 No. Thermostat				
d)	1 No. 6 Window Annunciator				
e)	1 No. Plug & Socket				
f)	1 No. Test Terminal Block				
g)	1 No. T-N-C Switch				
h)	1 No. Emergency Push Button				
i)	1 No. Local/Remote Selector Switch				
	Meters				

a)	1 No. Analog Ammeter + ASS				
b)	1 No. Analog Voltmeter + VSS				
c)	1 No. Digital Multifunction Meter - Quasar				
	Relays				
a)	1 No. MC 61A (O/C + E/F - IDMT+Inst)				
b)	1 No. AVAJH13 Master trip relay (Ashida)				
c)	1 No. TCS Relay				
	Outgoing:-				
a)	2 No. 11kV 630A 18.6kA drawout type VCB with motorised spring charge mechanism for 240V AC, closing & tripping coils suitable for 24V DC				
	Each Outgoing comprising with following accessories.				
b)	1 No. Mechanical ON/OFF Indicator				
c)	1 No. Aux Switch 6NO + 6NC				
	Panel, Busbar, CT, PT				
a)	1 No. Fully compartmentalised sheet steel enclosure floor mounting type with automatic safety shutters, independent pressure discharge flaps, PVC sleeved busbar, etc with provision for terminating PVC/PILC/XLPE Cable				
b)	3 Nos. Resin Cast CTs 50/1A with Core 1 : 7.5VA CL 1 Core 2 : 7.5VA CL 5P10				
	Breaker Panel indication Lamps :				
a)	6 Nos. ON/OFF/TRIP/TRIP Ckt Healthy/Spring Charged				
	Switches and other Accessories				
a)	8 nos.Fuses				
b)	1 No. Heater				
c)	1 No. Thermostat				
d)	1 No. 6 Window Annunciator				
e)	1 No. Plug & Socket				
f)	1 No. Test Terminal Block				
g)	1 No. T-N-C Switch				
h)	1 No. Emergency Push Button				
i)	1 No. Local/Remote Selector Switch				
	Meters				
a)	1 No. Analog Ammeter + ASS				
b)	1 No. Digital Multifunction Meter - Quasar				
	Relays				
a)	1 No. MC 61A (O/C + E/F - IDMT+Inst)				
b)	2 Nos. Auxiliary Relay for transformer fault				
c)	1 No. AVAJH13 Master trip relay (Ashida)				
d)	1 No. TCS Relay				
	Three VCB Panel Board	Nos.	1		
5	11KV/ 0.415KV 750 KVA DRY TYPE CAST RESIN INDOOR TYPE OCTC TRANSFORMER				
	Supplying, Assembling , erecting, testing and commissioning of 750 KVA 11KV/0.415KV 3phase 50Hz, indoor type copper wound, Dry type cast resin step down transformer complete with all modern fittings as given in the specifications including , lifting lugs, Roller type bi-directional wheels, suitable boxes on both the ends for cable entry & Exit, winding temperature indication & alarm, earthing terminals, diagram and rating plat etc. as required.				
	The transformers shall be installed in hot, humid tropical atmosphere. All equipment accessories and wiring shall be provided with tropical finish to prevent fungus growth				
	The transformers shall be dry Type & capable of continuous operation of rated output under the operating conditions of voltage and frequency variations as per statutory limits governed by relevant Indian Standard and Indian Electricity Rules, 1956 / IEC with latest amendments in force.				
	Requirement: 11KV/415V voltage dry type cast resin with OFF LOAD Tap Changer(OCTC), Tapping range +5% to -7.5% in steps of 2.5% (HV side), neutral air cooled, double copper wound, core type suitable for packaged substation housed in a enclosure.				
	Voltage Ratio: No load voltage 11000/415volts within tolerance as stipulated in latest IS standard.				
	Insulating material shall be of proven design. The insulating materials shall be class "F"				
	Rating: The transformer shall have a continuous rating as specified at any of the specified tapping position and with the maximum temperature rise specified.				
	Temperature Rise: The maximum temperature rise at the specified maximum continuous output shall not exceed 40°C by thermometer of winding above ambient temperature of 50°C.				
	Type of Load: The transformer shall be suitable for carrying unbalanced load up to 90% load within temperature rise indicated in the Indian Standard specification 'Guide for loading of dry Transformer				

	Overloads: The transformers shall be suitable for carrying overload within temperature rise indicated in IS 'Guide for Loading of dry transformer'.				
	Connections: H.V. Delta and L.V Star connected with neutral brought out on the secondary side for connection to earth; Vector group DYn11 of IS:2026				
	Each 11KV/415V Step down transformers shall be provided with the following fittings and accessories: Rating diagram and terminal marking plate for transformer				
	Lifting lugs for transformer				
	Bi-directional Rollers				
	Rating diagram and terminal marking plate for transformer				
	Earth terminals (2 Nos) for body earthing for transformers				
	Inspection door for access to terminal connections for transformers				
	Suitable cable termination arrangement for L.V. side with extended Bus bars suitable for 2/ 3 Runs of 3.5Cx 300sq. mm 1.1 K.V. XLPE Aluminum Conductor cable or Bus duct connection and cable box terminations on H.V. Side, suitable for 3Cx 240/300sq. mm 11 K.V. XLPE Aluminum Conductor cable.				
	Necessary hardware, clamps, lugs etc. for terminations of H.V. Cables on HV side and cable termination on L.V. Side.				
	Winding temperature indicator with contacts for remote alarm and tripping.	Nos.	2		
6	EXTERNAL ILLUMINATION WORKS				
6.1	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
a	100 mm dia	Metre	10		
b	150 mm dia	Metre	10		
6.2	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				
a	40 mm dia	Mtrs	300		
b	120 mm dia (OD-120 mm & ID-103 mm nominal)	Mtrs	30		
c	160 mm dia (OD-160 mm & ID-135 mm nominal)	Mtrs	30		
6.3	Supply of 6.0 Mtr High Octagonal pole (Hot Dip Galvanized) BOP-6030 Single Arm with top dia 70mm and bottom dia 130mm and made of 3mm thick base plate of size 200mmX200mmX12mm (LXBXT) (4 nos.), with suitable size of foundation bolts and with single arm bracket of 750mm long in 42mm dia pipe complete as required.	Nos	13		
6.4	Supply of 4mtr high Decorative poles alongwith base plate of size 300X300X10mm thick, along with 4Nos of M20X600 long 'J' type EN 8 grade foundation bolts with inbuilt junction box/bakelite sheet with 10A SP MCB. Post top lentren shall be mounted on top of the pole.	Nos	7		
6.5	Supply of 45W Post Top / Gate light Lantern die cast aluminium housing with Acrylic clear diffuser, symmetrical wide light distribution & Ingress Protection rating IP65, Surge Protection of 5kV, CCT - 3000K (CCT tolerance allowed as per ANSI), PF>0.9, rated lumens 2900 , make as per approved list of makes (for 3 mtr pole)	Nos	7		
6.6	Supply of LED Street Light Pressure Die Cast Aluminium Housing, Top maintenance: Access to driver should be from the top without opening LED compartment, rated 6000 lumens with rated system wattage 45W, With non-yellowing modular secondary lens optics, ensuring IP66 protection, LED Used shall be SMD type and fixture should have rated system efficacyof >= 100 Lumens/Watt, Life of System should be 50000 hrs @L70, CCT - 3000K (CCT tolerance allowed as per ANSI), CRI > 70, PF >=0.9, THD<10%, with Potted Driver for better life & heat dissipation, the fixture should comply with the parameters as per IS10322 . Company LOGO shall be Engraved on the luminaire, Built in Surge Protection of 4kV & External Surge Protection of 10kV, Operating Voltage range:- 150-270 V AC, operating temperature from -10 to +45 degree celcius. make as per approved list of makes. (For 6 mtr Pole)	Nos	13		
6.7	Erection of metallic pole of following length in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) foundation including excavation and refilling etc. as required.				
a	Above 4.5 metre and upto 6.5 metre	Mtrs	20		
6.8	PVC/ XLPE insulated PVC sheathed heavy duty, armoured electrical cables with Aluminium conductor for working voltage upto and including 1100volts (conforms to IS:1554, Part-1)				
a)	2 Core 6sq. mm.	RM	400		

6.9	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Upto 35 sq. mm	RM	25		
6.10	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground in same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Upto 35 sq. mm	RM	25		
6.11	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size cables in the existing RCC/ HUME/ Stoneware/ Metal pipe as required				
a)	Upto 35 sq. mm	RM	350		
6.12	Supplying and making end termination of following sizes with brass compression gland including providing and crimping solderless plugs/ferrules of sizes PVC insulated PVC sheathed aluminum conductor armoured cable 1.1 KV grade.				
a)	2C x 6 sq mm	Set	30		
6.13	Supplying and fixing of outdoor type junction box (IP 67) suitable to incoming and outgoing up to 16 sq. mm Al Armoured Cable. The junction box shall also be suitable for 3 Nos. outgoing circuits each consisting of 3 Nos. 2.5 sq mm copper wired wires (for Post top light)	Set	20		
6.14	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required	Metre	800		
7	HT & LT Cables				
7.1	Supply of cable XLPE -PVC insulated PVC sheathed galvanised steel strip armoured electric power cable with aluminium conductor 11000 volt grade of size 3CX240 sqmm.	Meter	110		
7.2	Supply of cable XLPE -PVC insulated PVC sheathed galvanised steel strip armoured electric power cable with aluminium conductor 11000 volt grade of size 3CX150 sqmm.	Meter	20		
7.3	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required. Above 120 sq. mm and upto 400 sq. mm	Metre	10		
7.4	Laying of one number XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL/CABLE TRAY pipe as required. Above 120 sq. mm and upto 400 sq. mm	Metre	110		
7.5	Laying of one number XLPE power cable of 11 KV grade of following size in the existing masonry open duct as required. Above 120 sq. mm and upto 400 sq. mm	Metre	10		
a)	240 sq. mm	Each	9		
7.6	supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
a)	240 sq. mm	Each	1		
7.7	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
a)	240 sq. mm	Each	1		
7.8	Supplying of following 1100 volt grade XLPE insulated PVC sheathed aluminium / Copper conductor armoured cables as per specification as required.				
	PVC/ XLPE insulated PVC sheathed heavy duty, armoured electrical cables with Aluminium conductor for working voltage upto and including 1100volts (conforms to IS:1554, Part-1)				
a)	3.1/2 core 25sq. mm.	RM	75		
b)	3.1/2 core 35sq. mm.	RM	175		
c)	3.1/2 core 50sq. mm.	RM	50		
d)	3.1/2 core 70sq. mm.	RM	75		
e)	3.1/2 core 95sq. mm.	RM	150		
f)	3.1/2 core 120sq. mm.	RM	100		
g)	3.1/2 core 150sq. mm.	RM	20		
h)	3.1/2 core 185sq. mm.	RM	100		
i)	3.1/2 core 240sq. mm.	RM	360		
j)	3.1/2 core 300sq. mm.	RM	400		

7.9	PVC/ XLPE insulated PVC sheathed heavy duty, armoured electrical cables with Copper conductor for working voltage upto and including 1100volts (conforms to IS:1554, Part-1)				
a)	4 core 16 sq. mm. Stranded (Copper)	RM	130		
b)	4 core 10 sq. mm. stranded (Copper)	RM	185		
c)	4 core 6 sq. mm. stranded (Copper)	RM	50		
d)	2 core 10 sq. mm. stranded (Copper)	RM	100		
e)	3 core 4 sq. mm. stranded (Copper)	RM	10		
f)	4 core 1.5 sq. mm. (Copper Control cable)	RM	100		
g)	7 core 1.5 sq. mm. (Copper Control cable)	RM	100		
h)	12 core 1.5 sq. mm. (Copper Control cable)	RM	100		
i)	4C 150 SQMM FSC	RM	85		
j)	4C 35 SQMM FSC	RM	120		
k)	4C 10 SQMM FSC	RM	65		
l)	1 core 50 sq. mm. (Copper flexi cable)_for UPS	RM	270		
7.10	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Upto 35 sq. mm	RM	100		
b)	Above 35 sq. mm and upto 95 sq. mm	RM	50		
c)	Above 95 sq. mm and upto 185 sq. mm	RM	100		
d)	Above 185 sq. mm and upto 400 sq. mm	RM	50		
7.11	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size cables in the existing RCC/ HUME/ Stoneware/ Metal pipe as required				
a)	Upto 35 sq. mm	RM	50		
b)	Above 35 sq. mm and upto 95 sq. mm	RM	25		
c)	Above 95 sq. mm and upto 185 sq. mm	RM	25		
d)	Above 185 sq. mm and upto 400 sq. mm	RM	50		
7.13	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required upto 35 sqmm to 95 sqmm(clamped with 1MM thick saddle)				
a)	Upto 35 sq. mm	RM	50		
b)	Above 35 sq. mm and upto 95 sq. mm	RM	20		
c)	Above 95 sq. mm and upto 185 sq. mm	RM	10		
d)	Above 185 sq. mm and upto 400 sq. mm	RM	10		
7.14	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
a)	Upto 35 sq. mm (clamped with 1mm thick saddle)	RM	865		
b)	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	RM	550		
c)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	RM	300		
d)	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	RM	700		
7.15	Supplying and making end termination of following sizes with brass compression gland including providing and crimping solderless plugs/ferrules of sizes PVC insulated PVC sheathed aluminum conductor armoured cable 1.1 KV grade.				
a)	3.1/2 core 25sq. mm.	Set	2		
b)	3.1/2 core 35sq. mm.	Set	4		
c)	3.1/2 core 50sq. mm.	Set	4		
d)	3.1/2 core 70sq. mm.	Set	10		
e)	3.1/2 core 95sq. mm.	Set	24		
f)	3.1/2 core 120sq. mm.	Set	4		
g)	3.1/2 core 150sq. mm.	Set	2		
h)	3.1/2 core 185sq. mm.	Set	2		
i)	3.1/2 core 240sq. mm.	Set	8		
j)	3.1/2 core 300sq. mm.	Set	40		
k)	4 core 16sq. mm.(Copper)	Set	8		
l)	3/4 core 4 - 10sq. mm.(Copper)	Set	14		
m)	4 core 1.5sq. mm.(Copper Control cable)	Set	8		
n)	7 core 1.5sq. mm.(Copper Control cable)	Set	4		
o)	12 core 1.5sq. mm.(Copper Control cable)	Set	4		
p)	1 core 50sq. Mm (Copper flexi cable))	Set	54		
q)	2 core 10sq. Mm	Set	2		
r)	4 core 35sq. mm. FSC	Set	2		
s)	4 core 150sq. mm. FSC	Set	2		
t)	4 core 10sq. mm. FSC	Set	2		
8	CABLE TRAY & CABLE TERMINATION				

8.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I.suspenders including G.I. bolts & nuts, etc. as required.				
a	150mm width X 50mm depth X 1.6 mm thickness	RM	400		
b	300mm width X 50mm depth X 1.6 mm thickness	RM	200		
c	450 mm width X 50 mm depth X 2.0 mm thickness	RM	150		
d	600mm width X 62.5mm depth X 2.0 mm thickness	RM	50		
e	750mm width X 75mm depth X 2.0 mm thickness	RM	100		
f	900mm width X 75mm depth X 2.0 mm thickness	RM	75		
8.2	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
a	150mm width X 50mm depth X 1.6 mm thickness	EACH	40		
b	300mm width X 50mm depth X 1.6 mm thickness	EACH	20		
c	450 mm width X 50 mm depth X 2.0 mm thickness	EACH	15		
d	600mm width X 62.5mm depth X 2.0 mm thickness	EACH	5		
e	750mm width X 75mm depth X 2.0 mm thickness	EACH	10		
f	900mm width X 75mm depth X 2.0 mm thickness	EACH	5		
8.3	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
a	150mm width X 50mm depth X 1.6 mm thickness	EACH	20		
b	300mm width X 50mm depth X 1.6 mm thickness	EACH	10		
c	450 mm width X 50 mm depth X 2.0 mm thickness	EACH	5		
d	600mm width X 62.5mm depth X 2.0 mm thickness	EACH	2		
e	750mm width X 75mm depth X 2.0 mm thickness	EACH	5		
f	900mm width X 75mm depth X 2.0 mm thickness	EACH	2		
8.4	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
a	150mm width X 50mm depth X 1.6 mm thickness	EACH	10		
b	300mm width X 50mm depth X 1.6 mm thickness	EACH	5		
c	450 mm width X 50 mm depth X 2.0 mm thickness	EACH	2		
d	600mm width X 62.5mm depth X 2.0 mm thickness	EACH	1		
e	750mm width X 75mm depth X 2.0 mm thickness	EACH	2		
f	900mm width X 75mm depth X 2.0 mm thickness	EACH	1		
9	ELECTRICAL PANELS & POWER DISTRIBUTION BOARDS				
9.1	MAIN LT PANEL -1				
	All incoming & outgoing (Icu=Ics=36kA)				
A.	Incoming Air Circuit Breaker from Transformers 2 X 750kVA each having following components:				
	2 x 1250 amps 4 pole electrically operated manually draw out type air circuit breaker each with following accessories :				
i.	Digital energy meter of accuracy class-0.2, with 3 Nos. 1250/5 amps 15VA CTs.				
ii.	1 Nos. 1250/5 amps 15VA CTs for capacitor controller.				
iii.	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
iv.	Breaker ON / OFF / TRIP indicating lights with control MCB's. - 1 Set				
v.	24 V DC Shunt trip coil. - 1 Set				
vii.	240 V under voltage release. - 1 Set				
viii.	25A Breaker control switch - 1 Set				
ix.	Three Phase Under voltage relay MV12 or equivalent (27) - 1 Set				
x.	Three Phase Over voltage relay MV 12 or equivalent (59) - 1 Set				
xi.	Voltage sensor relay - 1 Set				
xii.	10 Mode, 100kA Transient voltage surge suppressor with 63A 4 Pole 50KA MCCB.				
xiii.	Auxiliary contacts required for necessary interlocking of breakers.				
B.	Incoming Air Circuit Breaker from DG sets of 1X750KVA having following components:				
	1 x 1250 amps 4 pole electrically operated manually draw out type air circuit breaker each with following accessories :				

i.	Digital energy meter of accuracy class-0.2, with 3 Nos. 1250/5 amps 15VA CTs.				
ii.	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
iii.	Breaker ON / OFF / TRIP indicating lights with control MCB's. - 1 Set				
iv.	24 V DC Shunt trip coil. - 1 Set				
v.	240 V under voltage release. - 1 Set				
vii.	25A Breaker control switch - 1 Set				
viii.	Three Phase Under voltage relay MV12 or equivalent (27) - 1 Set				
ix.	Three Phase Over voltage relay MV 12 or equivalent (59) - 1 Set				
x.	Reverse power protection relay - 1 Set				
xi.	Auxiliary contacts required for necessary interlocking of breakers.				
C.	Incoming Air Circuit Breaker from DG sets of 1X500KVA having following components:				
	1 x 800 amps 4 pole electrically operated manually draw out type air circuit breaker each with following accessories :				
i.	Digital energy meter of accuracy class-0.2, with 3 Nos. 800/5 amps 15VA CTs.				
ii.	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
iii.	Breaker ON / OFF / TRIP indicating lights with control MCB's. - 1 Set				
iv.	24 V DC Shunt trip coil. - 1 Set				
v.	240 V under voltage release. - 1 Set				
vii.	25A Breaker control switch - 1 Set				
viii.	Three Phase Under voltage relay MV12 or equivalent (27) - 1 Set				
ix.	Three Phase Over voltage relay MV 12 or equivalent (59) - 1 Set				
x.	Reverse power protection relay - 1 Set				
xi.	Auxiliary contacts required for necessary interlocking of breakers.				
D.	Incoming Breaker from SOLAR PV PANEL				
	1x200 amps 4P MCCB each with following accessories :				
i.	Breaker ON / OFF indicating lights with control MCB's. - 1 Set				
E	Bus Bars 1 to II				
	1400 amps TPN Aluminium bus bars with colour coded heat shrinkable insulating sleeves - 1 Set.				
F	Bus Coupler				
i.	1250 amps 4 pole electrically operated manually drawout type air circuit breaker, with ON / OFF / TRIP indicating lamps with control MCB's, shunt trip, U/V release breaker control switch- 1 Set.				
G	AMF Logic (for both DG incomers)				
	Both DG incomers shall have annunciation for LLOP, HWT & oil temp (annunciator shall reset itself) O/C, E/F, 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 by passed till oil pressure is picked up, motorised potentiometer for voltage raise & lower along with raise/ lower switches, suitable battery charger for 24V 360 AH (Selection of batteries shall be as per DG rating, the vendor shall ensure from DG vendor the same to avoid any discrepancy), Indicating lights for D.G. on mains, D.G. fails to start, Generator start /stop facility through push button from panel. 1 No. engine cranking relay, whenever D.G. stop through PB, load shall be disconnected first, complete AMF logic along with cranking relays to start the DG incase of power failure and DG stoping incase of power restoration and AMF shall be microprocessor based with indication for DG ON/OFF and load ON, 1 Set of starter for DG canopy blower if required, battery charger, starter with cyclic timer for lub oil priming pump, supply for space heater.				
H	Outgoing of Bus bar I & II				
i.	2 Nos. 630 Amps TP MDO ACB and ON/OFF/TRIP indication with MFM complete with matching cast resin Ct's & control MCB's.				
ii.	6 Nos. 400 Amps 4 POLE MCCB and ON/OFF indication with MFM complete with matching cast resin Ct's & control MCB's.				
iii.	3 Nos. 250 Amps 4 POLE MCCB and ON/OFF indication with MFM complete with matching cast resin Ct's & control MCB's.				
iv.	2 Nos. 315 Amps 4 POLE MCCB and ON/OFF indication with MFM complete with matching cast resin Ct's & control MCB's.				
v.	3 Nos. 160 Amps 4 POLE MCCB and ON/OFF indication with MFM complete with matching cast resin Ct's & control MCB's.				
vi.	1 Nos. 125 Amps 4 POLE MCCB and ON/OFF indication with MFM complete with matching cast resin Ct's & control MCB's.				
	Vacant: 2 Nos. space for 400Amps 4 POLE MCCB complete with busbar links for future connection.				
I	Notes :				
a.	All outgoing feeders shall have suitable range of followings:				

i	All outgoing feeder shall have digital electronic energy meter with suitable no. of CT,s and RS 485 port .				
ii.	1 No. 1250/5, 15 VA ratio CT's shall be provided for APFCR on each transformer's incomer				
iii	Suitable danger board shall be provided.				
iv	All bus bar section / backside panels shall have hinged type door.				
v	All incoming / outgoing air circuit breakers shall be suitable for minimum 50 kA breaking capacity.				
vi	9 W fitting with LED lamp, switch shall be provided in each vertical section.				
vii	Incomer ACB receiving power transformer panel shall have suitable provision for cable connectivity.				
viii	Incomer ACB receiving power from DG sets shall have suitable provision for Cables connection.				
ix	All Electronic Energy meter shall be pre wired for EMS connection upto central point within the panel with shielded cable.				
x	All incoming & outgoing feeders shall have minimum 4 nos. potential free contacts.				
xi	1No. 24V DC Supply Power Pack with suitable (bidder shall provide the Ah calculation) Ah Maintenance free Battery back up. Power Pack should be with Protections of over voltage/ under voltage/ over charging.				
xii	PLC system for automatic operation of DG sets & mains complete with HMI display and control cabling- 1 lot				
xiii	2 no. x 25 KVAR capacitor banks each having 25 KVAR (should offer net capacitance of 25 KVAR at 415V) section will have 63A TP MCCB . (for both transformers incomer)	Nos.	1		
9.2	COMMON AREA PANEL				
A.	Incoming MCCB Breaker from Main LT Panel 2 x 400 amps 4 MCCB with following accessories :				
i.	Digital energy meter of accuracy class-0.2, with 3 Nos. 400/5 amps 15VA CTs.				
ii	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
iii	Breaker ON / OFF indicating lights with control MCB's. - 1 Set				
B	Bus Coupler				
i.	400 amps 4 pole MCCB with ON / OFF indicating lamps with control MCB's, shunt trip, U/V release breaker control switch- 1 Set.				
C	Bus Bar 500 amps TPN Aluminium bus bars with colour coded heat shrinkable insulating sleeves - 1 Set.				
D	OUTGOINGS: All outgoings (Icu=Ics=25kA) are with ON indication & control MCB's				
i	160 Amps 4 POLE MCCB -2 Nos.				
ii	100 Amps 4 POLE MCCB -2 Nos.				
iii	63 Amps 4 POLE MCB -3 Nos.				
iv	40 Amps 4 POLE MCB -3 Nos.				
v	25Amps 4 POLE MCB -3 Nos.	Nos.	1		
9.3	275KVAR CAPACITOR PANEL				
	INDOOR DUTY				
	CAPACITOR PANEL SHALL BE 275 KVAR. (3X50 KVAR+ 4X25 KVAR+1X15 KVAR+1X10KVAR). THESE CAPACITOR VALUES SHOULD BE NET AT 415V AND ACCORDINGLY CAPACITORS SHALL BE DERATED AT 525V. MINIMUM 2NOS, 800 CFM AXIAL FANS WILL BE USED FOR AIR COOLING CAPACITOR PANEL SHALL BE EXPENDABLE TYPE.				
a)	INCOMER: Supply, testing & commissioning of 275 KVAR at 415V capacitor panel having 1 no. 630Amps TP MCCB as incomer. Incomer shall have 3 nos LED indicating lights with control MCB for incoming power, 1 no. Multifunction meter of size not less than 250mmX250 MM showing V/A/PF parameters with matching cast resin CT's, 3 phase 10 steps automatic power factor correction relay with 2 spare feeders.				
b)	BUS BAR: A set of TPN Aluminium bus bar rated for 700A (after considering all necessary deratings) 3 phase 4wire, 50Hz. A minimum derating factor of 0.75 must be taken for calculation of bus bar sizes. The bus bar size after derating shall be equal to the ampere given in the BOQ The conductivity of bus bar shall not be less than 58% and earth bus size shall be 30% of phase bus bar. (50kA)				
c)	OUTGOINGS:				

-	3 nos. x 50 KVAR capacitor banks each having 50 KVAR (should offer net capacitance of 50 KVAR at 415V) section will have 160A TP MCCB with 1 no of 110 amps TP capacitor duty contactor, 1 no. 100KVAR 7% harmonic block reactor with 200% linearity class H, Net 62.5 KVAR Heavy duty capacitor rated at 525V, 1 set lights ON/OFF, 1 set of ON/OFF push buttons, 1 no. CT operated ammeter 0-125amps.				
-	4 no. x 25 KVAR capacitor banks each having 25 KVAR (should offer net capacitance of 25 KVAR at 415V) section will have 80A TP MCCB with 1 no of 60amps TP capacitor duty contactor, 1 no. 25KVAR 7% harmonic block reactor with 200% linearity class H, Net 33.5 KVAR Heavy duty capacitor rated at 525V, 1 set lights ON/OFF, 1 set of ON/OFF push buttons, 1 no. CT operated ammeter 0-60amps.				
-	1 no. x 15 KVAR capacitor banks each having 15 KVAR (should offer net capacitance of 25 KVAR at 415V) section will have 63A TP MCCB with 1 no of 60amps TP capacitor duty contactor, 1 no. 15KVAR 7% harmonic block reactor with 200% linearity class H, Net 19.5 KVAR Heavy duty capacitor rated at 525V, 1 set lights ON/OFF, 1 set of ON/OFF push buttons, 1 no. CT operated ammeter 0-60amps.				
-	1 no. x 10 KVAR capacitor banks each having 10 KVAR (should offer net capacitance of 10 KVAR at 415V) section will have 40A TP MCCB, 1 no. 10KVAR 7% harmonic block reactor with 200% linearity class H, Net 12.5 KVAR Heavy duty capacitor rated at 525V and 1 set lights ON/OFF.				
	Each capacitor bank shall be able to operate in either manual or auto mode individually through APCR relay and separately in auto mode. Actual capacitance value will be high at 525V and each capacitors should be derated to offer value given above at 415V.				
-	1 set of complete wiring	Nos.	2		
9.4	LIFT PANEL - 1				
A.	Incomer				
	1 No. 125 amps 4 pole MCCB following accessories :				
i.	Digital energy meter of accuracy class-I, with 3 Nos. 125/5 amps 15VA CTs.				
ii.	Phase indicating light shall be protected by suitable rating MCB's.- 3 Sets				
iii.	Breaker ON / OFF indicating lights with control MCB's. - 1 Set				
iv.	240 V under voltage release. - 1 Set				
v.	25A Breaker control switch - 1 Set				
B.	Bus Bars				
	200 amps TPN Aluminium bus bars with colour coded heat shrinkable insulating sleeves - 1 Set.				
C.	Outgoing				
i.	63 Amps 4 Pole MCB - 5 No.				
ii.	25 Amps Double Pole MCB - 3 No.				
D.	Spare				
i.	63 Amps 4 Pole MCB - 1 No.				
ii.	25 Amps Double Pole MCB - 1 No.				
	Panel as described above.	Nos.	1		
9.5	SOLAR PANEL				
A.	Incomer				
	2 No. 100 amps 4 pole MCCB following accessories :				
i.	Digital energy meter of accuracy class-I, with 3 Nos. 100/5 amps 15VA CTs.				
ii.	Phase indicating light shall be protected by suitable rating MCB's.- 3 Sets				
iii.	Breaker ON indicating lights with control MCB's. - 1 Set				
iv.	240 V under voltage release. - 1 Set				
v.	25A Breaker control switch - 1 Set				
B.	Bus Bars				
	250 amps TPN Aluminium bus bars with colour coded heat shrinkable insulating sleeves - 1 Set.				
C.	Outgoing				
	1 No. 200 amps 4 pole MCCB following accessories :				
i.	Breaker ON/OFF indicating lights with control MCB's. - 1 Set				
	Panel as described above.	Nos.	1		
9.6	EXTERNAL LIGHTING PANEL				
A.	Incoming				

	32 Amps SPN MCB with following accessories: Breaker ON indicating lights with control MCB's. - 1 Set				
	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
B.	Outgoing				
	3 Nos. 16A SPN feeders each having one no. 16A DP MCB's with 24 hour real timer for auto switching of load.				
	1 Nos. 16A SPN feeders each having one no. 16A DP MCB's				
	2 Nos. 16A SPN spare feeders each having one no. 16A DP MCB's				
	1 set of complete wiring				
	Note: All MCB's shall be of 10 KA breaking capacity.				
	EXTERNAL LIGHTING PANEL described as above	Set.	1		
9.7	TYPICAL FLOOR PANEL				
A.	Incomer				
	2 nos. 200 amps 4P MCCB with following accessories :				
i.	Phase indicating light shall be protected by suitable rating MCB's. - 3 Sets				
ii	Breaker ON / OFF indicating lights with control MCB's. - 1 Set				
B	Bus Coupler				
i.	200 amps 4 pole MCCB with ON / OFF indicating lamps with control MCB's, shunt trip, U/V release breaker control switch- 1 Set.				
C	Bus Bar				
	250 amps TPN Aluminium bus bars with colour coded heat shrinkable insulating sleeves - 1 Set.				
D	OUTGOINGS: All outgoing (Icu=Ics=18kA)				
i	63 Amps 4 POLE MCB -3 Nos.				
ii	40 Amps 4 POLE MCB -2 Nos.				
iii	32Amps 4 POLE MCB -2 Nos.				
iv	25Amps 4 POLE MCB -3 Nos.	Nos.	6		
10	RISING MAINS				
10.1	Supplying, installing on wall, testing and commissioning of following capacity Air Insulated Compact Type Rising Mains for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply with enclosure having IP-54 rating after fixing the tap off boxes and all accessories, made of 1.6mm thick steel sheet duly powder coated in convenient sections complete with 4 Nos aluminium bus bars having current density of 130 A/ sq cm at nominal current rating, necessary joints & expansion joints, fire barrier at each floor, provision of tapping at every metre, continuous earthing with 2 Nos aluminium strip of suitable size (one on each side) including, G.I. clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system etc. as required.				
a)	315 A Isc = 25kA for 1 second	Meter	35		
10.2	Supplying, installation, testing & commissioning of following capacity Plug In/ tap off box on the existing Air Insulated Compact Type bus trunking/ rising mains for use on 3 phase 4 wire 415 V, 50Hz A.C. supply made with 1.6mm thick sheet steel enclosure (IP54) duly powder coated with provision of MCCB (but without MCCB) complete etc. as required				
a)	125 A 15kA SC for 1 sec	Each	12		
11	EARTHING & LIGHTNING PROTECTION				
11.1	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required	Metre	100		
11.2	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	Metre	200		
11.3	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Metre	670		
11.4	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	Metre	800		
11.5	Providing and fixing 6SWG dia GI wire on surface or in recess fro loop earthing along with existing surface / recessed conduit / submain wiring for connection as required.	Metre	100		
11.6	Providing and fixing earth bus of 32 mm X 6 mm copper strip on surface for connections etc. as required	Metre	190		

11.7	Providing and fixing earth bus of 50 mm X 6 mm GI strip on surface for connections etc. as required	Metre	525		
11.8	Providing and laying G.I. tape 32 mm X 6 mm from earth electrode directly in ground as required.	Each	610		
CU WIRE CONDUCTORS					
11.9	Providing and laying following size CU insulated wire on surface or in recess in existing conduit/ cable tray for connections etc. as required.				
a	1 core 6 sq mm CU Flexi cable	Metre	100		
b	1 core 10 sq mm CU Flexi cable	Metre	100		
c	1 core 16 sq mm CU Flexi cable	Metre	150		
12.0 ROD ELECTRODE EARTHING STATIONS					
	Supply & erection of maintenance free Copper coated earth rod of 3 metre electrode having diameter of following rods with copper clading/pure copper with rod to tape clamp for terminating flat conductor. Earth enhancing mineral compound 25 kg which is not required frequent addition of water. FRP/HDPE Earth electrode inspection chamber size W 330 mm X L 150 mm X D 130 mm with heavy duty cover . The systems is conforming to IEC 60364, IEC 62561, IEC 62305, IS 2309 & IS 3043				
	Earth enhancing material should permanently protect the encased metal conductor of corrosion.				
	Electrode's top terminal should be sealed permanently with the conductive concrete and GI extension strip taken out be terminated at earth bus bar.				
	Other hardware like nuts, bolts and washers should be of Stainless Steel.				
	Electrode should withstand fault current up to 30 kA for 1 second.(Provide the certificate for the same)				
a	Electrode of 3000mm with 16mm CU conductor	No.	12		
b	Electrode of 3000mm with 17.2mm Dia Copper cladded conductor	No.	17		
c	Electrode of 3000mm with 25mm Dia copper cladded conductor	No.	16		
13.0 LIGHTNING PROTECTION					
13.1	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.	Each	13		
13.2	Fixing of lightning conductor finial (single prong) with base plate including holes etc. complete as required.	Mtr	13		
13.3	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For horizontal run)	Mtr	475		
13.4	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	Mtr	300		
13.5	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.	Mtr	7		
13.6	Providing and fixing 32 mm X 6 mm G.I. strip on surface or in recess for connections etc. as required.	Mtr	300		
	Note: The 32 mm X 6 mm strip will be laid along with the Boundary wall of the Building.				
14 SOLAR SYSTEM (110 KWP SOLAR PLANT)					
14.1 Module and Structure					
	Poly Crystalline 335Wp Modules,With inbuilt bypass diode,Frame should be Al anodize,power tolerance of +/- 3%,Vmp and Imp shall not vary more than 2%, With junction box arrangement having inbuilt bypass diode,weather proof,IP-65,with RFID tag.Material warranty upto 10 year and performance warranty 25 year.				
14.2 Inverter					
	SUITABLE FOR 50 KWp SOLAR SYSTEM GRID CONNECTED String INVERTER,House MPPT,Grid interactive,output should compatible with grid frequency. IGBT/MOSFET,Microprocessor, DSP,415 V,3-Phase,50Hz +/- 3%,Ambient tem -20 dec to +50Deg,Humidity 95%, Protection IP-20 for indoor and IP-65 outdoor,grid voltage tolerance -20% to +15%, No load losses lees then 1% of rated power,efficiency 93% or above, THD less then 3%,P.F more then 0.9,fully automatic,having internal protections against any fault in feeder,Built-in meter and data logger to monitor plant, inverterdesing as per IEC/BIS standard for efficiency and enviornmental tests as per IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30).MPPT as per IEC 60068- 2(1,2,14,30)/BIS.Junction box should be IP-65 for outdoor and IP 55 for indoor as per IEC 529.Inverter should be grid integrated.				

	Array Junction Box (SMB) suitable for outdoor (IP-65), Structure mounted type construction with following items: 5 numbers 16 Amp, 1000Volt DC, positive side Pull out fuse as incomersuitable for 4 Sq. mm. Cu. Flexible solar cable connection (Make :- Little Fuse / Bussman/ Reputed) 5 numbers 16 Amp, 1000Volt DC, Negative side Pull out fuse as incomersuitable for 4 Sq. mm. Cu. Flexible solar cable (Make :- Little Fuse / Bussman/ Reputed) 5 Nos. PVC Gland for positive side fuse				
	connection through 4Sq. mm. Solar Cable. (Make :- Comet / Power Connect) 5 Nos. PVC Gland for Negative side fuse connection through 4Sq. mm. Solar Cable. (Make :- Comet / Power Connect) One pair (positive and negative both) 50A, Cu Bus Bar Enclosure with structure/wall mounting arrangement Suitable for outdoor Application along with suitable heat dissipation facility. (Make :- Reputed)				
14.3	Electrical/ AC Side				
a)	Installation Testing and commissioning of solar power system as above 110 KWp.				
b)	Super with structure 110 KWp				
	Discribed as above 110 KWP Solar Plant	Lot	1		
	Grand Total				
Note:- The rates quoted includes all other taxes , duties , loading, unloading , transportation, other expenses etc to site. except GST which will be paid extra as applicable					

NAME OF WORK:- SBI A'O PROJECT & VARIOUS OUTFITS PLOT NO-3, IT PARK AT DEHRADUN

INTERNAL ELECTRIFICATION WORKS- ONLINE SEALED PRICE BID

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
A	INTERNAL WIRING & DISTRIBUTION BOARDS & MCB's				
	Point wiring in PVC conduit , with modular type switch :-				
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class pvc conduit, with modular switch, modular plate , suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.				
a	Group A	Point	90		
2	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required.				
a	Group A	Point	175		
	Twin Control Point wiring in PVC conduit, with modular type switch :-				
3	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class pvc conduit, 2 way modular switch, modular switch, suitable M.S. box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.	Point	16		
	Power plug wiring in PVC conduit (2 x 4 Sq.Mm.) :-				
4	Wiring for light/ power plug with 2X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class pvc conduit alongwith 1 No. 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	M	1820		
	Circuit / Sub main wiring in PVC conduit :-				
5	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class pvc conduit as required.				
a	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire.	M	50		
b	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire. (DB to switch board)	M	500		
c	2 x 6 sq.mm. + 1 x 6 sq.mm. Earth wire	M	500		
d	2 x 10 sq.mm. + 1 x 6 sq.mm. Earth wire	M	500		
e	4 x 10 sq.mm. + 2 x 6 sq.mm. Earth wire	M	50		
f	4 x 16 sq.mm. + 2 x 6 sq.mm. Earth wire	M	50		
	S/F light plug point Modular type accessories :-				
6	Supply and fixing of suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps. modular switch, connection etc. as required.	Each	3		
	S/F power plug point modular type accessories :-				
7	Supply and fixing of suitable size GI box with modular plate and cover in FRLS on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps. modular switch, connection etc. as required.	Each	52		
8	Supplying and fixing 20 amps , 240 volts, SPN, industrial type socket outlet, with 2 poles and earth metal enclosed plug top along with 20 amps. "C" curve, SP MCB in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet, and complete with connections, testing and commissioning etc. as required.	Each	14		
	S/F modular type blanking plate :-				
9	Supply and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	5		
II	DISTRIBUTION BOARDS & MCB's				

10	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	8 way (4 + 24), Double door	Each	2		
11	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V , on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
a	8 way , Double door	Each	1		
b	12 way , Double door	Each	7		
12	Supplying and fixing following way, horizontal type TP&N, sheet steel MCB distribution board , 415 V on surface /recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required (But without MCB / RCCB / Isolators).				
a	8 way (4 + 24), Double door	Each	1		
b	12 way (4 + 36), Double door	Each	1		
13	Supplying and fixing following rating, Single/ double/ three pole, 230/ 415 volts, MCB "C" curve in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps DP MCB	Each	8		
b	40 amps 4P MCB	Each	1		
c	63 amps 4P MCB	Each	1		
14	Supplying and fixing following rating, double pole , (single phase and neutral), 240 volts, residual current circuit breaker (RCCB) , having a sensitivity current upto 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps.	Each	3		
b	63 amps.	Each	3		
15	Supplying and fixing 5 amps. to 32 amps. rating, 240 volts 'C' series, miniature circuit breaker (MCB) suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	single pole	Each	124		
b	Triple pole	Each	16		
16	Supplying & fixing single pole, blanking plate in the existing MCB DB complete etc. as required.	Each	10		
17	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.				
a	100 A, 16 KA, TPMCCB	Each	2		
	S/F MODULAR BOXES, BASE & COVER PLATE :-				
18	Supplying and fixing following size / modules, GI box along with modular base & cover plate for modular switches in recess etc as required				
a	1 or 2 Module (75 mm x 75 mm)	Each	2		
	S/F MODULAR TYPE SWITCH / SOCKET :-				
19	Supplying and fixing following modular switch / socket on the existing modular plate & switch box including connections but excluding modular plate etc as required				
a	Telephone Socket outlet	Each	1		
b	RJ 45 cat 6 jack point	Each	1		
20	Supply 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 :				
a	20 mm.	M	10		
b	25 mm.	M	50		
c	32 mm.	M	10		
21	Supply and drawing following pair, 0.5 sq.mm. FRLS PVC insulated annealed copper conductor, unarmoured telephone cable in the existing surface / recessed steel/ PVC conduit as required.				
a	2 Pair	M	50		

22	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.				
a	1 run of cable	M	50		
SH:- II- Fitting & Fixtures					
23	SITC of following ratings RECESS /SURFACE MOUNTED LED ROUND / SQUIRE SHAPE DOWN LIGHT liminaire with pressure dia cast housing FOR SINGLE PHASE supply voltage luminaire shall be confirm to IS 10322 Part 3 section 2 or IEC 6-7 22 with all necessary accessory item required .				
a)	Recessed/Surface mounted downlight luminaire Blaire with HPE (High-Performance Efficiency) LED (Light Emitting Diode) system power: 10 W, Luminous flux of luminaire 950 lm, Colour temperature of 4000 K, Neutral white, SDCM 3, CRI > 80, 230 V constant current driver, 70% of luminous flux after 50,000 operating hours; Energy efficient LEDs, Direct light emission, Luminaire housing in aluminium, Polyester powder-white coloured coat applied over a 5- stage pre-treatment, Prismatic diffuser for homogenous light distribution, gear.	Each	65		
b)	Recessed/Surface luminaire Zen 14 SM with LED (Light Emitting Diode), system power: 15 W, luminous flux of 1500 lm, colour temperature of 4000 K, neutral white, 230 V constant current driver, 70% of luminous flux after 50,000 operating hours, energy-efficient LEDs, CRI > 80, direct light emission, Luminaire housing in CRCA, polyester white powder coat applied over a 5-stage pre-treatment, opal diffuser for glare-free uniform light, electronic control gear. (15/16w LED ROUND DOWNLIGHT)	Each	97		
c)	Supply, Installation, Testing & Commissioning of LED Bulkhead Fixture made of pressure die cast aluminum housing with high efficiency reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level (Not Chip Level) >=100lumens/watt, Life of fixture (Including Driver) : 30K Hrs. @ L70B50 Lumen maintenance, CCT - 6500 (SDCM<5), CRI >70, PF >0.95 , an operating Voltage Range of 140 - 270 V.Minimum Internal Surge Protection 2.0KV The fixture design should comply with IS10322, Minimum system Lumens 700.	Each	83		
d)	SITC OF Surface mounted 20W LED batten lighting fixture with driver complete in all respect, suitable for soft soil installation 1302mm INCL.1 x LED TUBE 20W / CRI>80 / 3000K /2200lm INCL.PIN INCL.1 x CABLE H05 RN-F 2 x 1 mm ² 2m EXCL.LED POWER SUPPLY 24V-DC CRI 80 Colour temp Warm White (+3000K) LED Technics (light source) 1800 lm // 20 W // 90 lm/W \IP20	Each	42		
Fans					
24	Installation of exhaust up to 450mm sweep in the existing opening, including making the hole to suit the size of the above fan, making good the damage, connection, testing, commissioning etc. as required	Each	10		
25	Supply of 12" (300mm) metal exhaust fan	Each	5		
26	Supply of 16" (400mm) metal exhaust fan	Each	5		
27	Extra for fixing the louvers/ shutters complete with Frame for a exhaust fan of all sizes	Each	2		
Grand Total					
Note:- The rates quoted includes all other taxes , duties , loading, unloading , transportation, other expenses etc to site. except GST which will be paid extra as applicable.					

WATER TREATMENT PLAN (WTP) & SEWAGE TREATMENT PLAN (STP) - ONLINE SEALED PRICE BID

S. No.	Description of Item	Unit	Qty.	Unit Rate (Rs.)	Amount(Rs.)
5.0	Raw Water Treatment Feed Pump set				
1	Providing, fixing, commissioning and testing package vertical raw water pumps, comprising of Electrical Driven inline pumping with all accessories, Pumps shall be with C.I. Base, S.S 304, impeller, shaft, mechanical seal, S.S. Shaft directly coupled to motor suitable for operation on 400/440 volts, 3 phase 2900 RPM. TEFC continuous duty with F-type insulation electric motor mounted on a common channel baseplate 150mm dia pressure gauge, GM isolation cock and cement concrete foundation with plaster with dunlop cushy foot mountings with all accessories such as NRVs, valves, pressure guage bourden type, common suction and delivery header, bellows on sucton and delivery side complete in all repsects.				
	Pumps shall be suitable for 415 ± 10% volts 3 phase 50 Hz A.C supply & shall be having the following requirement complete with foundation and associated civil works.				
	Suction & Delivery Header - SS 304				
	Control Valve On suction and Delivery - Ball Valve Only (No Butterfly Valve Accepted). NR Valve at the start of suction side				
	Flow Prevention - Only Check Valve				
	Suction & delivery header including all pipes, suction & delivery sides valves, NRV, Pressure gauges & accessories complete.				
	Flow Rate : 2.0 LPS (1 working + 1 stand by)				
	Head : 70 M				
	Min. Motor HP : 3.0 H.P. (Each)	Set	1		
2	Domestic Water Transfer Pumps				
	Providing, fixing, commissioning and testing package vertical raw water pumps, comprising of Electrical Driven inline pumping with all accessories, Pumps shall be with C.I. Base, S.S 304, impeller, shaft, mechanical seal, S.S. Shaft directly coupled to motor suitable for operation on 400/440 volts, 3 phase 2900 RPM. TEFC, continuous duty with F-type insulation electric motor mounted on a common channel baseplate 150mm dia pressure gauge, GM isolation cock and cement concrete foundation with plaster with dunlop cushy foot mountings with all accessories such as NRVs, valves, pressure guage bourden type, common suction and delivery header, bellows on sucton and delivery side complete in all repsects.				
	Pumps shall be suitable for 415 ± 10% volts 3 phase 50 Hz A.C supply & shall be having the following requirement complete with foundation and associated civil works.				
	Suction & Delivery Header - SS 304				
	Control Valve On suction and Delivery - Ball Valve Only (No Butterfly Valve Accepted). NR Valve at the starting of suction side				
	Flow Prevention - Only Check Valve				
	Suction & delivery header including all pipes, suction & delivery sides valves, NRV, Pressure gauges & accessories complete.				
	Flow Rate : 4.5 LPS (1 working + 1 stand by)				
	Head : 70 M				
	Min. Motor HP : 7.5 H.P. (Each)	Set	1		
3	Supply, installing, testing and commissioning of submersible dewatering single stage single entry pumps with C.I.body and C.I. two vane enclosed type impeller, SS-304 shaft 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, arrangement for both pumps running together in case of emenegency, audible hooter for failure or flooding, dry running Protection complete in all respects.				
	(Pumps shall be installed in a set of two pumps One working and One standby)				
	Pump Room Drainage Pumps and basement				
	(Pumps to be suitable to handle solids upto 30 mm size)				
	Capacity - 4.0 LPS (Each)				
	Head - 15 M				
	H.P. - 2.2 HP Approx.	Set	2		
4	Supply Installation,Testing & Commissioning of vertical self supporting Filter fabricated from MS sheet as per IS: 2825, (minimum thickness of shall 6 mm and dished end 8 mm)) 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 including CC foundation of suitable size.				
	Dual Media Filter For Domestic Water Supply				
	Capacity- 2.0 LPS				

	Filter dia approx. - 1400 MM				
	Working pressure: 5.0 Kg/sq cm.				
	Test pressure : 7.0 Kg/sq cm	Each	1		
5	Activated Carbon Filter For Domestic Water Supply				
	Capacity- 2.0 LPS				
	Filter dia approx. - 1400 MM				
	Working pressure: 5.0 Kg/sq cm.				
	Test pressure : 7.0 Kg/sq cm	Each	1		
6	Supply Installation, Testing & Commissioning of Water Softener fabricated from MS plate as per IS: 2825 (minimum thickness of shall 6 mm and dished end 8 mm) complete with initial charge of resins, GI class 'C' face piping, CI butterfly valves, pressure gauge, hydraulic brine injector, accessories, painting inside with epoxy paint, including 500 liters capacity PVC / HDPE brine tank suitable for 2 regeneration capacity, testing and commissioning complete with resins of approved quality and make complete in all respects including CC foundation of suitable size.				
	For Domestic Tower Water Supply in Water Supply Pump Room				
	Hardness-				
	Inlet- 500-600 PPM				
	Outlet- Less than 50 PPM				
	Capacity- 2.0 LPS				
	Regeneration period 12 hrs.				
	Working pressure: 5.0 Kg/sq cm.				
	Test pressure : 7.0 Kg/sq cm	Each	1		
7	Supply Installation, Testing & Commissioning of metering pump type chemical doser with 200 lits. HDPE chemical grade solution tank, injection fitting assembly, suction and delivery hose upto the point of injection, capacity 0-12 lph, complete in all respects.				
	Chlorination of Domestic Water	Each	1		
8.0	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.				
	Electric Panel For Water Supply Pumps at Water Supply Pump Room				
	INCOMING				
	1 No. 200 amps TP + NL MCCB with the following accessories:				
	1 No. square flush mounting 0-500 volts scaled voltmeter with three way and OFF switch.				
	Three phase indicating lights.				
	Electrolytic high conductivity three phase and neutral tinned alluminium bus bar rated at 300 amps having a current density of 1 amp per Sqmm suitable to with stand symmetrical fault level of 25 MVA at 415 volts. The neutral bus bar is to be of 100% capacity.				
	OUTGOING UNITS				
	2 Nos 32 Amp. TPN MCB of breaking capacity 10KA				
	4 Nos 63 Amp. TPN MCB of breaking capacity 20KA				
	1 No. TPN MCB of 100 A with 20 KA service breaking capacity for Domestic water hydropneumatic pumps (Only connection to inbuilt panel of Domestic system)				
	2 Nos. fully automatic Star-Delta starters with suitable rating thermal relay & SPP with push buttons and ON/OFF indicating lights and overload relays for 7.5 HP pumps.				
	4 Nos. fully automatic DOL starters with suitable rating thermal relay & SPP with push buttons and ON/OFF indicating lights and overload relays for 2.0 to 30. HP pumps.				
	6 Nos. selector switch for selecting mode of operation i.e. auto/manual/off.				
	6 Nos. cyclic relay for automatic duty changeover of pumps.				
	6 No. single phase preventors.				
	6 Nos. square flush mounting 0-30 amps scaled ammeters with three way and OFF selector switch.				
	Space for 3 Nos. Level Controllers.				
	Switchgear shall be suitable for the HP of various motors.				

	2 No.40 Amp. TPN MCB Spare.				
	2 No. 32 Amp. TPN MCB Spare.				
	The motor control panel shall be prewired with colour coded wires with identification labels complete in all respects as required.	Set	1		
9.0	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
a	50 mm dia	Metre	20		
b	65 mm dia	Metre	25		
c	80 mm dia	Metre	10		
10.0	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				
a	50 mm dia	Each	2		
b	65 mm dia	Each	4		
c	80 mm dia	Each	4		
11.00	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
a	50 mm dia	Each	4		
b	65 mm dia	Each	2		
c	80 mm dia	Each	4		
12	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	3 x 6 sq. mm	Metre	90		
b	3 x 4 sq. mm	Metre	45		
c	2 x 1.5 sq. mm	Metre	25		
13	Providing, installation, testing and commissioning of stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.				
	80 mm dia.	Each	2		
SEWAGE TREATMENT PLANT (STP) ON SBR CAPACITY : 50 KLD					
9.0	Supplying, installing, testing & commissioning of Sewage Treatment Plant of 50 m3/day based on MBBR technology (excluding excavation, back filling & disposal of surplus earth MS / Civil construction work like RCC tanks, Reservoirs etc) for the following duty: Nature of				
	The STP design based on the following parameters:				
	Daily average flow: 50 M3/Day (STP)				
	PH : 6-8.5				
	BOD : 350 mg/l				
	S. Solids : 500 mg/l				
	COD : 450 mg/l				
	Oil & Grease : 45 mg/l				
	Sewage discharge standard after treatment :-				
	PH : 6.5-7.5				
	BOD : Less than 20 mg/l After ozonator Less than 10mg/l				
	S. Solids : Less than 10 mg/l				
	COD : Less than 80 mg/l After ozonator Less than 50mg/l				
	Oil & Grease : Less than 5 mg/l				
	Sewage treatment plant shall include the following Civil Units : (Client's Scope)				
	Sewage Equalization Tank - 1nos				
	Bar Screen cum Oil & Grease Chamber - 1nos				
	Tube Settler				
	SBR Tank				
	Sludge Holding Tank				
	Clear Water Tank				
	Treated Water Tank				
	Supplying, installing, testing & commissioning of SBR system based sewage treatment plant including all equipment & accessories as per detail specification / drawings.				

Following equipments shall be part of Sewage Treatment Plant (for detail of equipment refer technical specification				
2 x 2.0 HP Flushing / Soft Water Transfer Pumps (1 Duty + 1 Stand by)				
2 x 2.0 HP treatment plant Feed Water Pumps for STP (1 Duty + 1 Stand by)				
2 x 2.0 HP Sewage Water Transfer Pumps for STP (1 Duty + 1 Stand by)				
For 2 x 1.0 HP Sludge Transfer Pumps for STP (1 Duty + 1 Stand by)				
For 2 x 3.0 HP Irrigation Water Supply Pumps for STP (1 Duty + 1 Stand by)				
2 x 1.0 HP Blower Air Feeder Line (1 Duty + 1 Stand by)				
2 x 1.5 HP Back Wash Pumps				
Filters (DMF & ACF)				
Softener with brine tank				
Dosing units				
U.V. Sterlizer				
All accessories and media required for STP and WTP				
Instrumentation				
Piping and valves as per specification and drawings				
Additional Feeder For :				
i) For 2 x 2.0 HP Flushing Water Transfer Pumps for STP (1 Duty + 1 Stand by)				
ii) For 2 x 2.0 HP Sewage Water Transfer Pumps for STP (1 Duty + 1 Stand by) - only feeder to sub panels				
iii) For 2 x 3.0 HP irrigation System Feed Pumps (1 duty + 1 stand by) - only feeder to sub panels.				
All electrical works including all wiring and accessories in side STP.				
Capacity : 50 M3 / Day	1	Job		
Garnd Total				-
Note:- The rates quoted includes all other taxes , duties , loading, unloading , transportation, other expenses etc to site. except GST which will be paid extra as applicable				
MAKE OF ALL PUMPS AND MOTORS SHOULD BE CG/KEC/NGEF/BJ AND STARTERS SHOULD BE L&T/CG/BCH				

ONLINE SEALED PRICE BIDDING- FIREFIGHTING WORKS

S. No.	Description of Item	Unit	Qty.	Rate	Amount
SUBHEAD-I(A): FIRE PUMPS AND HYDRANT WORKS (NON SCHEDULED ITEMS)					
1	FIRE PUMPS - ELECTRICAL				
	(a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.				
	(b) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.				
	c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.				
	(d) Suitable cement concrete foundation duly plastered with anti vibration pads.				
	2280 lpm at 88 m Head	Set	2		
	1620 lpm at 56 m Head	Set	1		
	a) Supplying, installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Jockey Pump)				
	b) Horizontal type, multistage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS : 1520.				
	c) Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325.				
	c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.				
	(d) Suitable cement concrete foundation duly plastered with anti vibration pads.				
	180 lpm at 88 m Head	Set	2		
3	FIRE PUMPS - DIESEL				
	a) Supplying, installation, testing and commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Diesel Drive Pump)Horizontal type, multistage, centrifugal pump of cast of iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.				
	b) Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio ndications, painted with post office red colour etc. as required.				

	c) M.S fabricated, common base plate, coupling, coupling guard, foundation bolts etc. as required.Suitable cement concrete foundation duly plastered and with anti vibration pads.				
	2280 lpm at 88 m Head	Set	1		
5	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	Each	6		
6	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia gun metal wheel valve with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	Each	2		
8	Supply, installation, testing, trial run and commissioning of hydrants all complete as required and as approved				
	Fire Hose Cabinet				
	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :				
c	Single headed Stainless steel	Each	20		
D	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal/Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required :				
	Single headed Stainless steel	Each	8		
	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required.				
	20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585				
	20 mm nominal internal dia gun metal globe valve & nozzle.				
	Drum and brackets for fixing the equipments on wall.				
	Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket.				
e	30 m	Each	20		
	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :				
f	Stainless steel (Grade 304)	Each	56		
	Supplying & fixing 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required :				
g	Stainless steel (Grade 304)	Each	28		
h	Supplying and fixing orifice plate made out of 6 mm thick stainless steel (Grade 304) with orifice of required size to be fitted between flange & landing valve of external and internal hydrants to reduce pressure at the outlet to the level of 3.5 kg/cm ² complete as required.	Each	28		

	Supplying and fixing of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904 as required :				
9	4 way - 150 mm dia M.S. Pipe	Set	2		
10.00	2 way-100 mm dia M.S. Pipe	Set	1		
SUBHEAD-I (B): PIPING FOR FIRE FIGHTING SYSTEM					
11	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
	All kinds of soil				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	Cum	385		
12	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc. including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required centering, shuttering and finishing smooth with 6mm thick cement plaster 1:3 (1 Cement : 3 fine sand) on exposed surfaces complete.				
	1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size).	Cum	6		
13	Constructing masonry chamber 90 x 90 x100 cm. inside with 75 class designation brickwork in cement mortar 1:5 (1 cement : 5 fine sand) for sluice valve with CI surface box 100 mm top dia. 180 mm bottom dia. And 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1 :5 :10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size and inside plastering with 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design with FPS bricks	Each	10		
14.0	Providing and fixing C.I. double acting air valves of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if reqd. will be paid separately)				
a	50 mm dia.	Each	3		
15	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
	150 mm dia.pipe	Each	10		
16	Providing, installation, testing and commissioning of stainless steel Ystrainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.				

a	150 mm dia.	Each	2		
17	Providing, installation, testing and commissioning of non-return valve of following sizes conforming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
A	80 mm dia	Each	2		
B	100 mm dia	Each	2.00		
C	150 mm dia	Each	44.00		
18	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				
A	80 mm dia	Each	30.00		
B	100 mm dia	Each	2		
C	150 mm dia	Each	28.00		
SUBHEAD-II (B):PIPING FOR FIRE FIGHTING SYSTEM					
1	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts,gaskets etc. in ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with oaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required.				
a	150 nominal bore (class C)	M	375		
2	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS:1239 including Welding, fittings like elbows, tees, flanges,tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Above Ground)				
	Note:				
	Threaded joint upto 50mm diameter pipe.				
	Welded joint above 50mm diameter pipe.				
a	250 mm nominal bore (class C)	Rm	25		
b	200 mm nominal bore (class C)	Rm	25		
c	150 mm nominal bore (class C)	Rm	645		
d	100 mm nominal bore (class C)	Rm	358		
e	80 mm nominal bore (class C)	Rm	675		
f	65 mm nominal bore (class C)	Rm	430		
g	50 mm nominal bore (class C)	Rm	625		
h	40 mm nominal bore (class C)	Rm	570		
i	32 mm nominal bore (class C)	Rm	201		
J	25 mm nominal bore (class C)	Rm	3645		
8	Providing, fixing, testing & commissioning of 15mm dia uartzoid bulb type sprinklers of rating 68 degree centigrade with required accessories :				
	Pendent Sprinkler	Each	0.00		
	Upright Sprinkler	Each	1465.00		
	Horizontal side wall sprinkler	Each	110.00		
	Concealed sprinkler	Each	2.00		

9	Providing & fixing flow switch in following sizes M.S. pipe including connection etc as required.				
	150mm dia	Each	8.00		
10	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	Each	8.00		
11	Providing, fixing, testing & commissioning of installation control valve of cast iron body, brass/bronze working parts comprising of water motor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to sound continuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc of following sizes as required :				
	150mm dia	Each	1.00		
12	Supplying, installation, testing & commissioning of sprinkler flexible pipe (UL Listed) of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of following sizes complete as required.				
	1200mm	Set	890.00		
	1500mm	Set	890.00		
	Supplying, installation, testing & commissioning of deluge valve (to be used for water curtains) UL listed with wet pilot basic trim assembly for DVA with test and alarm, drip and drain valve with water motor gong complete as required.				
	80 mm dia	Set	2.00		
	Providing, installation, testing & commissioning of water curtain nozzle 15mm dia nickel chrome plated brass, BSPT, K-factor as per design consideration complete as required.	Each	26.00		
	Providing, installation, testing & commissioning of electric release trim assembly for deluge wall with two way solenoid valve, weather proof operation on 24 volts DC supply complete as required	Set	2.00		
16	Providing, installation, testing & commissioning of adjustable rosette plate for 15mm dia in white finish UL Listed or FM approved complete as required.	Each	5.00		
SUBHEAD- III (B): FIRE EXTINGUISHER AND HYDRANT (NON SCHEDULED ITEMS)					
1	Providing and fixing carbon-di-oxide type fire extinguishers consisting of welded M.S. cylindrical body, internal discharge tube, discharge nozzle, suspension bracket, conforming to IS 2878 , finished externally with red enamel paint and fixed to wall with brackets complete with internal charges.				
a	Capacity 4.5 kg	Nos.	82		

2	Providing & Fixing of stored pressure Fire Extinguisher ABC powder type (Mono Ammonium Phosphate Powder) Magnetic Pressure Gauge having the facility to check at site, Discharge Time less than 9 Secs, Controllable discharge mechanism, Range minimum 4 Meters, applicable on Class A,B,C and electrically started Fire, A Rating- 21A, B Rating 55B as per BS EN-3 BIS 15683 marked, Can Construction : Deep drawn & CO2 Mig welded, Valve Construction : Forging & Machining, Internal Coating of Can : Epoxy Powder coating, External Coating of Can : Epoxy Polyester Powder coating, Sheet metal thickness : 1.60MM, Helium Leak Detection Tested, Warranty.				
	Capacity 6 Kg.	Nos.	82		
3	Providing and fixing mechanical foam type Trolley Mounted Fire Extinguisher of bearing to IS:10568/IS13385/IS13386 with dis				
	Capacity 50 Lit.	Nos.	2		
4	Providing and fixing Carbon Dioxide Type Trolley Mounted Fire Extinguisher of as per IS: 2878 with discharge time of 10 to 20 sec/15 to 36sec/20 to 60sec respectively.				
	22.5 Kg. CO2 Fire Extinguisher	Nos.	2		
5	Providing and fixing ceiling mounted type modular automatic extinguishing system with CLEAN AGENT HFC - 236 type, made of MS body treated against corrosion with heat sensitive glass bulb sprinkler heads (68deg/79deg C), pressure indicator, arrangement for fixing to the ceiling pressurized with nitrogen gas to 15 kgf/cm2 suitable for covering 13.25 cu.mt (465 cuft) volume.				
	5 Kgs Capacity	Each	4		
6	Providing and fixing angle iron (40 mm x 40 mm x 5 mm) MS door frame 900x2100 door capable of accommodating fire hose reel, landing valve, hose pipes, fittings & accessories. The door shall have a front glass with lock and key arrangement & shall be painted with post office red colour (approval shall be taken on the basis of submitted sample before ordering) Cost of fire extinguishers not included in item rate. (Liasioing with civil contractor for making 900x600x2100 Recessed type mansoary box (by civil contractor).	Each	20		
7	Providing and fixing of TAC approved 1.6mm thick M.S. fire hose cabinet (750x600x250mm) made out of 16 gauge M.S. sheet capable of accommodating landing valve, hose pipes, fittings & accessories. The box shall have a front glass door with lock and key arrangement & shall be painted with post office red colour (approval shall be taken on the basis of submitted sample before ordering) - for external and roof hydrant.	Each	10		
8	Providing and fixing of Fire Axe	Each	20		
9	Providing and fixing of Water Monitor 63mm dia to be operated in pressure line with 7-12 Kg/cm2, Inlet Flange NB 75/ 100 mm. Flow of 1750lpm with throw range of up to 52Mtrs at angle of 30°c.	Each	4		

10	Providing, fixing, testing and commissioning of full way level operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 15 kg/sq.cm with threaded/flanged complete with nuts, bolts, gaskets, washers etc. as required complete as per direction of Engineer incharge.				
	25 mm NB	Each	20		
	50 mm NB	Each	4		
SUBHEAD-IV (B): FIRE ELECTRICAL WORKS (NON SCHEDULED ITEMS)					
1	Fabrication, supply, Insallation testing & commissioning of Electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet, ompartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, interconnection with suitable size copper conductor cable/solid copper strip, having switchgears and accessories, mountings and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for main fire pump, pressurisation pump & diesel pump set complete as per CPWD specification with following in coming and Outgoings, suitable for operation on 415V, 3 phase, 50Hz Ac Supply with enclosure protection class IP 42 as required :				
A					
(i)	INCOMER	Set	1		
(a)	400A, 50kA 4 Pole MCCB, Ics=100% Icu rating Digital Voltmeter 0-500V with selector switch Ammeter (0-400 A) with selector swtich & CTs etc.				
(b)	LED type RYB phase indicating lamps, ON, OFF, trip indicating lamps Set of Copper Bus Bar 500A				
	OUTGOING.				
(a)	Main fire pump and Sprinkler pump				
	200 A, 50kA TPN MCCB, Ics=100% Icu, with fully automatic Star/Delta starter suitable for 75 hp pump with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation.				
	Water curtain pump				
	100 A, 50kA TPN MCCB, Ics=100% Icu, with fully automatic Star/Delta starter suitable for 60 HP pump with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation.				
(b)	Jockey pump				
	100 A, 50kA TPN MCCB, Ics=100% Icu, with suitable HP fully automatic Star/Delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation.				
(c)	Diesel Engine Control				
	Control for Diesel Engine comprising:-				
(i)	Auto / Manual selector switch & 3 attempt starting device, timers and relays as required, push buttons, start / stop in manual mode.				

(ii)	Indication lamp for High / Low Lub. Oil pressure, High Water Temp. and Engine ON indication.				
(iii)	Battery charger suitable for 12V / 24 V DC with boost and tickle selector switch, 0-30 V DC volt meter, 0-20A DC Ammeter.				
(iv)	All standard relays and accessories for automatic operation of diesel engine.				
B	DIESEL ENGINE CONTROL				
	Control for diesel engine comprising -Automatic/Manual selector switch & 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication Battery charger suitable for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0-20 A DC Ammeter All standard relays and accessories for automatic operation of diesel engine System Controller Designing, Supply, Installation, Testing and commissioning of system controller to control operation of main electric fire pump, diesel pump, Pressurization pump, Terrace pump in sequence as per specification consisting of relays, timers. Sensors, annunciation window for fault indication, complete as per specification				
SUBHEAD- IV: FIRE ELECTRICAL WORKS (DSR 2022)					
2	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	2		
3	Supplying and laying 25 mm x 5 mm. G.I. strip in 40 mm dia. G.I. Pipe from earth electrode, including connection with GI nut, bolt, spring, washer excavation and re-filling etc as required.	Rm	40		
4	Providing & fixing 25mm x 5mm G.I. strip on surface or in recess for connections etc. as required.	Rm	110		
5	Providing and Fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing alongwith existing surface/ recessed conduit/ submain wiring/ cable as required.	Rm	180		
6	Supplying, fabricating and installing following size of perforated painted with powder coating M.S. cable trays, with perforation not more than 17.5%, in convenient section, joined with connectors, suspended from the ceiling with MS suspenders including bolts & nuts, painting suspenders etc. as required.				
	100 mm width X 50 mm depth X 1.6 mm thickness	Rm	40		
	300 mm width X 50 mm depth X 1.6 mm thickness	Rm	30		
7	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
	Upto 35 sq. mm (clamped with 1mm thick saddle)	RM	25		
	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	RM	265		

8	Supplying of all materials and making terminations of 1.1 KV grade aluminium multicore cables of the following sizes. The work includes cable glanding using brass plated double compression glands, sizing the core leads, removing insulation, fixing suitable crimping type copper lugs/ thimbles by using hydraulic crimping tools with correct size of the dies, shaping the leads and neatly connecting the same to the equipment terminals.				
a	3.5 Core 120 sq. mm. Armoured Aluminium cable.	Mtr	20		
b	3.5 Core 35 sq. mm. Armoured Aluminium cable.	Mtr	60		
c	3.5 Core 16 sq. mm. Armoured Aluminium cable.	Mtr	20		
9	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
	5C x 1.5 Sq. mm	RM	120		
	TOTAL FOR FIREFIGHTING WORKS				-
	GST extra as applicable				