

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI-2671
BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|------|----------|----------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 100.00 | EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following. | | | |
| 101.00 | Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level. | | | |
| a | Depth from ground level but not exceeding 2 m | CUM | 6,287.84 | 0.577057966621 |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 1,369.16 | 0.157457690000 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 300.00 | 0.043214680000 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | 300.00 | 0.054019570000 |
| 103.00 | Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. | | - | |
| a | Depth from ground level but not exceeding 2 m | CUM | 845.34 | 0.114897640000 |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 600.00 | 0.097861140000 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 300.00 | 0.058717240000 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | 300.00 | 0.070462110000 |
| 105.00 | Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. | | - | |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 250.00 | 0.096641140000 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 250.00 | 0.115588620000 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | - | |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | - | |
| A107 | Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following. | | - | |
| a | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | CUM | 4,594.61 | 0.473726400000 |
| A108 | Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth , watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following. | | - | |
| a | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | | - | |
| 109.00 | Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km. | | - | |
| a | Carriage for stacking/ backfilling of serviceable material/ earth | | - | |
| b | Carriage for disposal of serviceable/unserviceable material/ earth | CUM | 7,657.00 | 0.062256660000 |
| A111 | Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete. | CUM | 39.90 | 0.032958700000 |
| B111 | Supplying and filling clean and well graded sand conforming to IS 383 with grading Zone I to III upto any depth under floors, around foundations, plinths, tank foundation etc in layers not exceeding 200 mm thickness and compacted so as to achieve at least 85% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by mechanical means, dressing, royalty (if any) etc. all complete. | CUM | 10.00 | 0.007407770000 |
| 200.00 | CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. | | - | |
| 201.00 | Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course , lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc. (BHEL will supply of Cement free of cost as per TCC) | CUM | 217.29 | 0.691932690000 |
| 202.00 | Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course , mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply of Cement free of cost as per TCC) | CUM | 25.00 | 0.079610180000 |
| 203.00 | Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course , mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply of Cement free of cost as per TCC) | CUM | 143.13 | 0.455768290000 |
| 204.00 | Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete. (BHEL will supply of Cement free of cost as per TCC) | CUM | 10.00 | 0.030868270000 |
| 205.00 | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at all level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. (BHEL will supply of Cement free of cost as per TCC) | | - | |

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|---|---|-------------|------------|--------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| a | M 25 Grade | CUM | 1,573.17 | 6.561120780000 |
| 206.00 | Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at all level above finished floor level , any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. (BHEL will supply of Cement free of cost as per TCC) | | - | |
| a | M 25 Grade | CUM | 2,137.67 | 9.482323180000 |
| 207.00 | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system but including TG foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing. (BHEL will supply of Cement free of cost as per TCC) | | - | |
| a | M 30 Grade | | - | |
| 209.00 | Extra over St. No. 205 to 207 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge. | | - | |
| 210.00 | Extra over ST Nos. 205 to 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification. | | - | |
| 211.00 | Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately). (BHEL will supply of Cement free of cost as per TCC) | | - | |
| b | M 25 | CUM | 20.00 | 0.063688090000 |
| 212.00 | Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following. (BHEL will supply of Cement free of cost as per TCC) | | - | |
| a | 1:2:4 | CUM | 266.51 | 0.848684350000 |
| 213.00 | Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc. at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc. complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades. (BHEL will supply of Cement free of cost as per TCC) | | - | |
| a | M25 | CUM | 15.19 | 0.083455930000 |
| b | M30 | CUM | 15.19 | 0.083914600000 |
| 220.00 | Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm. (BHEL will supply of Cement free of cost as per TCC) | CUM | - | |
| 223.00 | Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area). | SQM | 8.00 | 0.013382860000 |
| 300.00 | FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. | | - | |
| A301 | Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. | SQM | 3,723.30 | 1.725426960000 |
| A302 | Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. | SQM | 15,957.79 | 8.818621040000 |
| 304.00 | Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge. | | - | |
| a | Upto 150 mm depth | EACH | 35.00 | 0.007196590000 |
| b | Pockets of depths more than 150mm and upto 300 mm depth | EACH | 15.00 | 0.005401920000 |
| c | Pockets of depths more than 300mm and upto 600 mm depth | EACH | 15.00 | 0.009932550000 |
| d | Pockets of depths more than 600mm and upto 1000 mm depth | EACH | 10.00 | 0.010559890000 |
| e | Pockets of depths more than 1000mm and upto 1500 mm depth | EACH | 10.00 | 0.015439390000 |
| f | Pockets of depths more than 1500mm and upto 2000 mm depth | EACH | 10.00 | 0.020446100000 |
| 400.00 | REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | - | |
| 401.00 | Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings. | MT | 5.50 | 0.315306540000 |
| 402.00 | Transportation, straightening, cutting, bending, fixing, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR conforming to IS:1786 with minimum elongation of 14.5% including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer (TMT SUPPLIED BY BHEL FREE OF COST as per TCC) . | MT | 335.69 | 2.820171550000 |

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| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 407.00 | Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings. | MT | 1.20 | 0.043875040000 |
| 408.00 | Providing, straightening, cutting, bending, placing in position at any level, binding in position high yield strength steel TMT reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings. | MT | 1.20 | 0.045041270000 |
| 500.00 | Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - In - charge). | | - | |
| 502.00 | Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete. (BHEL will supply of Cement free of cost as per TCC) | SQM | 3,903.50 | 0.226730840000 |
| A506 | Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric , polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge | SQM | 3,903.50 | 3.152067040000 |
| 507.00 | Providing and laying wearing course consisting of 25 mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete. (BHEL will supply of Cement free of cost as per TCC) | SQM | 3,903.50 | 2.380714800000 |
| A510 | Providing and laying Pressed Precast cement concrete flooring tiles of 20mm thickness and size 300X300 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (including cost of cement for tiles making and (Water proofing paid elsewhere). (BHEL will issue cement free of cost for cement sand mortar) | SQM | 3,087.50 | 1.333192340000 |
| C510 | Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 200x200mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making). (BHEL will issue cement free of cost for cement sand mortar) | SQM | 2,917.50 | 1.700147590000 |
| 511.00 | Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete. | SQM | 3,087.50 | 0.347911000000 |
| A513 | Providing and mixing superplasticizer cum water proofing compound conforming to IS:2645/ 9103 in concrete or cement mortar all complete. | KG | 50.00 | 0.002153890000 |
| A514 | Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with minimum 150 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation | SQM | 20.00 | 0.002800110000 |
| B514 | Providing and applying two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of minimum 400 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams, wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384 complete all as per specifications & drawings. | SQM | 120.00 | 0.080085920000 |
| 517.00 | Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge. (BHEL will supply of Cement free of cost as per TCC) | CUM | 80.00 | 0.152508670000 |
| 600.00 | JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - In - charge. | | - | |
| 601.00 | Supplying & installation of bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete. | | - | |
| a | 12 mm wide joints. | SQM | 40.00 | 0.026626260000 |
| b | 20 mm wide joints | SQM | 10.00 | 0.010184790000 |
| c | 25 mm wide joints | SQM | 40.00 | 0.043633480000 |
| d | 50 mm wide joints | SQM | 40.00 | 0.084572090000 |
| 603.00 | Providing and applying polysulphide based sealant conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves: | | - | |
| a | 25mmX25mm | RM | 800.00 | 0.185870620000 |
| A604 | Supplying and filling in position hot applied bitumin sealing compound (Grade A) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete. | | - | |
| b | 12mm X 25mm | RM | 450.00 | 0.013504670000 |
| c | 20mmX25mm | RM | 450.00 | 0.016104240000 |
| 608.00 | Supplying and filling in position hot applied bitumin sealing compound (Grade B) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete. | | - | |
| b | 12mm X 25mm | RM | 450.00 | 0.013622690000 |
| c | 20mmX25mm | RM | 150.00 | 0.005414140000 |
| A609 | Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove: Note: The sealant should have VOC content limited to 250 grams per litre . All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor to engineer in charge. | | - | |
| a | 12mmX25mm | RM | 50.00 | 0.004581970000 |
| b | 25mmX25mm | RM | 50.00 | 0.009669330000 |
| 610.00 | Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type) | | - | |

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| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| d | 230 mm wide and 6 mm thick | RM | - | |
| 700.00 | MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 701.00 | Supply, fabricating and fixing of mild steel embedments , inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | MT | 14.40 | 1.059486680000 |
| 702.00 | Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. payment term- Receipt at Site-65%, Fixing in Position-35%) | MT | 2.00 | 0.180505810000 |
| 703.00 | Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site. | | - | |
| A | Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. | MT | 8.40 | 0.145955240000 |
| B | Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. | MT | 2.00 | 0.034070500000 |
| 704.00 | Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete. (Payment Terms - Receipt at Site-65%, Installation-35) | | - | |
| a | MS pipes of all diameters | kg | 130.00 | 0.008608200000 |
| b | PVC pipes / conduits of all diameters | kg | 300.00 | 0.124766330000 |
| c | UPVC pipes / conduits of all diameters | kg | 90.00 | 0.040344830000 |
| d | Expansion anchor fasteners (galvanised) of HILTI make (HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide: | | - | |
| i | 8mm Dia | Nos | 220.00 | 0.014823420000 |
| ii | 10mm Dia | Nos | 220.00 | 0.015845120000 |
| iii | 12mm Dia | Nos | 220.00 | 0.017890070000 |
| e | Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel: | | - | |
| i | HST3 M8 | Nos | 90.00 | 0.012337230000 |
| ii | HST3 M10 | Nos | 90.00 | 0.017565000000 |
| iii | HST3 M12 | Nos | 90.00 | 0.031261590000 |
| iv | HST3 M16 | Nos | 90.00 | 0.053949350000 |
| v | HST3 M20 | Nos | 90.00 | 0.110199430000 |
| vi | HST3 M24 | Nos | 90.00 | 0.183700300000 |
| f | Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod, nuts, washers, chemicals all complete, etc: | | - | |
| i | HAS-E5.8 M8 | Nos | 90.00 | 0.033352280000 |
| ii | HAS-E5.8 M10 | Nos | 90.00 | 0.039103030000 |
| iii | HAS-E5.8 M12 | Nos | 90.00 | 0.052171820000 |
| iv | HAS-E5.8 M16 | Nos | 90.00 | 0.088033810000 |
| v | HAS-E5.8 M20 | Nos | 90.00 | 0.140206060000 |
| vi | HAS-E5.8 M24 | Nos | 90.00 | 0.181713790000 |
| 800.00 | GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. | | - | |
| 802.00 | Providing & grouting of pocket holes , pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete. (BHEL will supply of Cement free of cost as per TCC) | CUM | 6.00 | 0.103143600000 |
| 803.00 | Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (BHEL will supply of Cement free of cost as per TCC) | CUM | 6.00 | 0.096642280000 |
| 804.00 | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor). | CUM | 4.00 | 0.154943650000 |
| 805.00 | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor). | CUM | 4.00 | 0.166123910000 |
| 900.00 | DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 901.00 | Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothing, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately) payment term- Receipt at Site-65%, Fixing in Position-35%) | CUM | 1.00 | 0.102203590000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI-2671
BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|-------------|------------|--------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 902.00 | Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately) payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 10.00 | 0.026887940000 |
| A903 | Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint conforming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge, with commercial faces and teak wood edges. (Finish painting paid separately) (Note: All particle board shall have recycled content. The bidder is required to provide material cutsheet sample/ declaration from manufacturer mentioning the percentage of recycled content used in manufacturing of particle board to the engineer in charge) (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 30.00 | 0.097168660000 |
| 904.00 | Providing and fixing single or double steel door shutters with 45 thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 50.00 | 0.247775180000 |
| A904 | Providing and fixing single or double steel door shutters with 35mm (min) thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 50.00 | 0.240854360000 |
| 905.00 | Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 38.00 | 0.210084910000 |
| A906 | Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized (15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 8/10/12 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) (payment term- Receipt at Site-65%, Fixing in Position-35%) | KG | 950.00 | 0.465558400000 |
| 908.00 | Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting, glazing etc. all complete. (Glazing shall be paid separately) (payment term- Receipt at Site-65%, Fixing in Position-35%) | | - | |
| a | Openable type | SQM | 110.00 | 0.213149600000 |
| b | fixed type | SQM | 70.00 | 0.087174050000 |
| A909 | Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing, grills etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid separately). Weight of aluminium section only shall be measure. All aluminium frames to be used shall have recycled content meeting required strength criteria for frame work as per engineer incharge. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of frames. (payment term- Receipt at Site-65%, Fixing in Position-35%) | Kg | 1,500.00 | 0.670882980000 |
| | Aluminium glazed doors and windows | | - | |
| | Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick Fire Retardant mineral filled Core comprising of around 70% Inorganic compound which is 100% non-combustible mineral and balance 30% is food grade virgin polymer Class B1 as per EN 13501, mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties conforming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. | | 1,401.00 | 5.487002860000 |

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| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|--|-------------|---------------|-----------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| A910 | Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners. 2nd barrier of 1mm thick GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other fastening straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware (fastening straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of frames. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | | |
| 911.00 | Providing and fixing of door closers as per specification, of approved make & quality all complete of following type : | | - | |
| a | Over head hydraulic door closures as per IS 3564 | Each | 64.00 | 0.103879120000 |
| b | Floor mounted Hydraulic door closers as per IS 6315 | Each | 64.00 | 0.172287570000 |
| 912.00 | Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications. | Kg | 50.00 | 0.006215040000 |
| 913.00 | Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles. (partly coiled and lath/full lath). (payment term- Receipt at Site-65%, Fixing in Position-35%) | | - | |
| b | Mechanically Operated | SQM | 85.00 | 0.225434360000 |
| c | Electrically operated | SQM | 18.75 | 0.054106470000 |
| 915.00 | Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. | | - | |
| h (a) | 6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-value 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28) (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 95.00 | 0.152652100000 |
| i (a) | composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured). Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK, VLT min 30%. The glass to be used should be from the manufacturers of glass like Glavel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 75.00 | 0.361230820000 |
| i (b) | composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured). The glass to be used should be from the manufacturers of glass like Glavel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress. (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 75.00 | 0.361230820000 |
| i (c) | One outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick plain float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured). The glazing to be used in all exterior walls shall be of Asahi (India) Glavel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance) ≤ 59 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 to 2.5 W/MSq K. The properties of performance and colour of glass shall be as per detail design values as approved by Architect and engineer in charge. The glass should be free from distortion and thermal stress (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 75.00 | 0.360970360000 |
| k (a) | One inner 6mm thick clear float glass and one outer 6mm thick reflective toughened glass hermetically sealed and separated by 12 mm thick gap for thermal insulation . Glass to be used shall be of make Saint Gobain(India), Asahi (India) or equivalent .Outer glass should have solar factor 25% or less, Maximum U-Value of 1.8 to 3.3W/SQMK, VLT min 47%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28). The properties of performance glass shall be as per detail design values. (only single elevation area to be measured). (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 80.00 | 0.249303920000 |
| l | 6 mm thick laminated glass | SQM | 55.00 | 0.075330830000 |
| l(a) | 10 mm thick laminated glass | SQM | 60.00 | 0.131845210000 |
| m | 6 mm thick clear toughened safety glass | SQM | 160.00 | 0.307520270000 |
| n | 8 mm thick clear toughened safety glass | SQM | 80.00 | 0.198646410000 |
| o | 10 mm thick clear toughened safety glass | SQM | 60.00 | 0.173011420000 |
| p | 12 mm thick toughened safety glass | SQM | 80.00 | 0.269136940000 |

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| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|-------------|------------|--------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| q | 12 mm thk curved toughened glass | SQM | 80.00 | 0.250869000000 |
| 917.00 | Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works). | SQM | 10.00 | 0.015392590000 |
| 922.00 | Providing and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 12 mm thk. tinted glass , all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within 1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any other accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each. | NOS | 1.00 | 0.206859990000 |
| 1,000.00 | BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| 1,002.00 | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 (including cost of cement for brick making) | CUM | 2,029.18 | 10.728089040000 |
| 1,003.00 | Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making) | SQM | 1,058.70 | 0.685051100000 |
| 1,011.00 | Providing and filling brick bats in soak pits all complete. | CUM | 29.00 | 0.026143090000 |
| 1,100.00 | DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| 1,101.00 | Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| b | 50mm thick | SQM | 247.88 | 0.058454500000 |
| 1,200.00 | PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Refer Notes at the end).(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| 1,201.00 | Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 7,335.00 | 1.295204590000 |
| 1,202.00 | Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 13,148.50 | 1.619090490000 |
| 1,204.00 | Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 3,491.00 | 0.429877540000 |
| 1,205.00 | Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete. | SQM | 300.00 | 0.031365210000 |
| 1,206.00 | Providing drip course on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instruction of engineer in charge. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | RM | 1,051.00 | 0.039459370000 |
| 1,207.00 | Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | RM | 451.00 | 0.013099510000 |
| 1,208.00 | Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately). (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 70.00 | 0.024369990000 |
| 1,300.00 | FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 1,304.00 | Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete. | SQM | 11,152.30 | 0.729347130000 |
| 1,305.00 | Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. | SQM | 4,719.00 | 0.457199850000 |
| 1,306.00 | Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications. | SQM | - | |

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| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|-------------|------------|--------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| A1312 | Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification. Note: The paint should have VOC content limit less than 200 grams per litre All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge. | SQM | 2,000.00 | 0.152226480000 |
| A1316 | Providing and applying 2 mm thick Acrylic wall putty in two coats over cement plastered surfaces including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer. | SQM | 7,535.00 | 0.529877390000 |
| 1,317.00 | Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer. | SQM | 120.00 | 0.010483140000 |
| A1319 | Providing and applying two or more coats of Premium Acrylic Smooth Paint with Silicone additives weather coat paint of approved brand and manufacture and required shade over one coat of primer of water proof cement paint after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification. | SQM | 9,335.00 | 1.400670810000 |
| 1,400.00 | FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 1,401.00 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement:1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):(BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 3,501.50 | 1.370822270000 |
| A1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring without metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips).(BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 40.00 | 0.014946500000 |
| A1404 | Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing).(inclusive of cost of cement for paver manufacturing). | | - | |
| Ab | 80mm | SQM | 495.00 | 0.445156150000 |
| 1,412.00 | Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of cement sand mortar of 1:4 (1 cement : 4 sand) by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply cement free of cost for cement sand mortar as per TCC) (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 90.00 | 0.258941060000 |
| 1,414.00 | Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 19.80 | 0.057174550000 |
| 1,416.00 | Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| b | 10mm thick tiles In flooring | SQM | 1,336.00 | 1.313023890000 |
| c | 7 mm thick tiles In skirting and dado upto specific height | SQM | 103.30 | 0.099603810000 |
| 1,417.00 | Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| b | 10mm thick tiles In flooring | SQM | 920.00 | 0.927688040000 |
| c | 7mm thick tiles In skirting and dado upto specific height | SQM | 97.00 | 0.080795180000 |
| A1417 | Providing and laying vitrified ceramic tiles of matt finish of size 800x800mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge). (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| b | 10mm thick tiles In flooring | SQM | 56.00 | 0.056656770000 |
| c | 7 mm thick tiles In skirting and dado upto specific height | SQM | 8.30 | 0.006946010000 |
| 1,419.00 | Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 40.00 | 0.144519960000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI-2671
BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|-------------|-----------------|-----------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 1,420.00 | Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | 300X300 mm | SQM | 86.30 | 0.054639250000 |
| b | 600X600 mm | SQM | 156.55 | 0.086503490000 |
| A1421 | Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 300x300mm (approved size) and 7mm thick of reputed / approved manufacturer (Kajaria, jhonson, varmora, quotone or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm, with Under bed shall average 43mm thk cement sand mortar of 1:3. NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) | SQM | 36.30 | 0.031982120000 |
| 1,422.00 | Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles conforming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Underbed shall be | | - | |
| a | 20mm thick | SQM | - | |
| b | 38mm thick | SQM | - | |
| 1,425.00 | Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 18-20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry 3.3kg/sqm spread over the surface with fine joint finished including moulded marble nosing, pigments, curing, grinding, making corners, granite polishing etc. complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) (payment term- Receipt at Site-65%, Fixing in Position-35%) | SQM | 358.00 | 0.704518960000 |
| A1427 | Providing and fixing designer ceramic tiles of approved color and design of size 200x300mm / 300x600mm in dado of approved size of reputed / approved manufacturer (Kajaria, jhonson, varmora, quotone or equivalent) , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 45/47mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses: NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | 5mm thick | SQM | 20.00 | 0.017782580000 |
| b | 7mm thick | SQM | 250.00 | 0.246375460000 |
| A1428 | Providing and laying 2mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete. | | - | |
| 1,430.00 | Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge. | | - | |
| a | Glass strips 40 mm wide and minimum 6 mm thick. | RM | 720.00 | 0.029277180000 |
| b | Aluminium strips 40 mm wide and minimum 3 mm thick | | - | |
| 1,500.00 | ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, lags, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| A1502 | METAL DECK SHEET Type-I , Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness (BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44mm of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester (SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron (nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minimum 5 micron (nominal) on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheets to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6mm dia @ 260mm c/c in the trough and stitch screws between two adjacent sheets and sealing with epoxy sealant . Measurement of profile sheeting shall be of the plan area of the roof covered by MS trough metal decking. (payment term- Receipt at Site-65%, Fixing in Position-35%) | | - | |
| a | Span Upto 1800mm | SQM | 2,000.00 | 2.792631320000 |
| b | Span Exceeding 1800mm and upto 2500 mm | SQM | 50.00 | 0.063174500000 |
| A1503 | Providing and fixing shear connectors of mild steel studs having 16 mm dia and minimum 65 mm projected length above purlin passing through metal decking as per relevant IS codes and specification. The shear anchor studs shall conform to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector manufactured from cold drawn round steel bars conforming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. | QUINTAL | 10.00 | 0.217286850000 |
| B1503 | Providing and fixing shear connectors of mild steel studs having 19 mm dia and minimum 100 mm projected length above purlin passing through metal decking as per relevant IS codes and specification. The shear anchor studs shall conform to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector manufactured from cold drawn round steel bars conforming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. | QUINTAL | 2.00 | 0.043457360000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|-------------|-----------------|-----------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 1,514.00 | Providing and installing under deck insulation with resin bonded rock wool 50 mm nominal thickness conforming to IS 8183 having a density of 48kg/cum using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.6 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation. (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 2,376.00 | 1.015986220000 |
| 1,600.00 | FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| A1602 | Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density 48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. (All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used) (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 2,520.00 | 2.594263050000 |
| A1607 | Providing and Fixing 12mm thick Gypsum board plain/ mineral fibre based acoustic ceiling board in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%. (All mineral fiber board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used) (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 440.00 | 0.544042530000 |
| B1607 | Providing and Fixing 12mm thick Calcium silicate board of HILUX or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%. (payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 56.00 | 0.068353410000 |
| 1,700.00 | RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 1,704.00 | Providing and fixing galvanised MS down take pipes of 150 mm dia - Medium quality as per IS:1239(part-I) all complete. (payment term- Receipt at Site-65%,Fixing in Position-35%) | RM | 792.50 | 1.019160040000 |
| 1,711.00 | Providing and making Khurras 45 x45 cm with average thickness of 3cm cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 20mm nominal size) over PVC sheet 1m x1mx 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete in all respects as per specification and drawing. | EACH | 61.00 | 0.052775430000 |
| 1,800.00 | MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. | | - | |
| 1,801.00 | Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill. | CUM | 864.00 | 1.393152430000 |
| 1,804.00 | Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete. | EACH | 20.00 | 0.003090030000 |
| 1,808.00 | Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost) | MT | 4.50 | 0.032866380000 |
| 1,809.00 | Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items). | each | 23.00 | 0.188290350000 |
| 1,810.00 | Construction of below ground earthing system test links as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items). | NO | 23.00 | 0.145031910000 |
| 1,823.00 | Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge. | CUM | 17.00 | 0.029110010000 |
| A1837 | Providing & fixing G.I chicken wire mesh 12.5mm X 24G for miscellaneous applications | SQM | 150.00 | 0.039088300000 |
| A1841 | Providing and installation of Civil Lab equipments in FQA lab as per specification .Civil Lab Equipment shall be supplied as per the Annexure-III (A), Sec-VI, Part-A, P. No 15 of 18 of customer technical specification. | L.S. | 1.00 | 0.604933570000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|------|--------|----------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 2,000.00 | FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| A2003 | Supplying and erecting in position 2.4 m high PVC coated galvanized chain linked fencing of minimum 4mm diameter (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanized steel wire for chain link fencing excluding PVC coating shall not be less than 2.5mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2008) | | - | |
| 2,008.00 | Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | MT | 1.00 | 0.075959280000 |
| 2,010.00 | Supply, fabrication and installing in position and testing MS Gates out of channels , joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | MT | 5.00 | 0.418202390000 |
| A2010 | Supply, fabrication and installing in position and testing of Electrically operated MS Gates out of channels , joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. (payment term- Receipt at Site-65%, Fixing in Position-35%) | MT | 10.00 | 1.211414880000 |
| 2,100.00 | WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | - | |
| A2101 | Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete -15mm nominal bore. (Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/ declaration from the manufacturers mentioning the same to Engineer in charge.) | NOS | 32.00 | 0.026432970000 |
| 2,102.00 | Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore. | NOS | 32.00 | 0.020706260000 |
| 2,103.00 | Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes: | | - | |
| a | 25mm nominal bore. | NOS | 32.00 | 0.014126360000 |
| b | 50mm nominal bore. | NOS | 32.00 | 0.025018310000 |
| 2,104.00 | Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes: | | - | |
| a | 15 mm nominal bore. | RM | 350.00 | 0.105713010000 |
| b | 20 mm nominal bore. | RM | 350.00 | 0.118318720000 |
| c | 25 mm nominal bore. | RM | 350.00 | 0.138648930000 |
| d | 50 mm nominal bore. | RM | 150.00 | 0.086430410000 |
| e | 40 mm nominal bore. | RM | 120.00 | 0.055164290000 |
| 2,105.00 | Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes: | | - | |
| a | 15 mm nominal bore. | RM | 120.00 | 0.028083850000 |
| b | 20 mm nominal bore. | RM | 120.00 | 0.032554780000 |
| c | 25 mm nominal bore. | RM | 930.00 | 0.304668710000 |
| d | 50 mm nominal bore. | RM | 300.00 | 0.152299800000 |
| e | 40 mm nominal bore. | RM | 300.00 | 0.116042350000 |
| 2,106.00 | Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete. | NOS | 19.00 | 0.019511900000 |
| A2106 | Providing and fixing 600mmx900mmx6mm thk mirror from reputed mirror manufacturer, edge mounted with teak beading and minimum 12mm thick plywood backing. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete. | NOS | 19.00 | 0.017503020000 |
| A2108 | Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete. | NOS | 24.00 | 0.023073050000 |
| 2,111.00 | Providing and fixing stainless steel / C.P. liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete. | NOS | 23.00 | 0.008229430000 |
| 2,112.00 | Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. all complete. | NOS | 19.00 | 0.006599620000 |
| 2,113.00 | Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete. | NOS | 19.00 | 0.001191830000 |
| A2114 | Providing & fixing in position Polyethylene water storage tank, ISI: 12701 of approved make including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete for following capacities. GI pipes shall be paid separately under ST No. 2105. | | - | |
| a | 500 litres capacity | NOS | 3.00 | 0.010629600000 |
| b | 1000 litres capacity | NOS | 4.00 | 0.028345650000 |
| c | 2000 litres capacity | NOS | 1.00 | 0.014172820000 |
| d | 5000 litres capacity | | - | |
| 2,116.00 | Providing and fixing electric operated hand dryer with photovoltaic control of reputed make, complete with all fittings and fixtures. | NOS. | 6.00 | 0.015304460000 |
| 2,117.00 | Providing and fixing gysrer of 25 litres capacity of reputed make with inlet and outlet connections, mounting plates, fixtures and fittings etc all complete. | NOS. | 3.00 | 0.019480400000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI-2671
BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|---|------|--------|----------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. No | Item Description | Unit | Qty | Weightage % |
| 2,200.00 | SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| 2,201.00 | Supply and fixing glazed vitreous china Wash Basin of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete. | | - | |
| a | White | EACH | 9.00 | 0.087678540000 |
| A2201 | Supply and fixing coloured glazed vitreous oval shape china wash basin 450x550mm conforming to IS: 2556 mounted over 18 mm thk granite beveled edge counter .The Basin shall be fitted with approved shape bib cock, photo-voltic control system for water control with flow rate less than 5 LPM (litres per minute) at 45 psi,CP brass chain with rubber plug, 40mm CP brass waste and bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification | EACH | 9.00 | 0.087334800000 |
| 2,202.00 | Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 40mm CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc.all complete. | EACH | 5.00 | 0.032905300000 |
| 2,203.00 | Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete. | EACH | 2.00 | 0.011830800000 |
| A2204 | Providing and fixing wall mounted coloured glazed vitreous water closet with flushing valve system,water faucet ,Toilet paper holder, open front solid plastic seat and plastic cover,including necessary CP connection etc all complete.having flow rate of 6/3 LPF (litres per flush) or less and faucet having flow rate of 5 LPM (litres per minute) or less. | EACH | 11.00 | 0.058816510000 |
| A2205 | Providing and fixing white/coloured glazed vitreous china Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete having flow rate of 6/3 LPF (litres per flush) or less at 45 psi. | EACH | 5.00 | 0.028969090000 |
| A2206 | Providing and fixing white/coloured water efficient flat black glazed vitreous china urinals of size 440x265x355mm with photo voltaic control flushing system as per IS: 2556(pt-6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi. | EACH | 11.00 | 0.145267270000 |
| 2,207.00 | Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | 75mm dia pipes | RM | 150.00 | 0.063951770000 |
| b | 110mm dia pipes | RM | 150.00 | 0.084339860000 |
| c | 160mm dia pipes | RM | 150.00 | 0.135396540000 |
| d | 200mm dia pipes | RM | 150.00 | 0.187325220000 |
| 2,211.00 | Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete. | EACH | 12.00 | 0.073271030000 |
| 2,212.00 | Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete. | EACH | 12.00 | 0.062927180000 |
| 2,213.00 | Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:(BHEL will supply cement free of cost for cement sand mortar as per TCC) | | - | |
| a | 100x100mm P or S Type. | EACH | 15.00 | 0.016745970000 |
| b | 150x100mm P or S Type. | EACH | 15.00 | 0.017686890000 |
| c | 150x150mm P or S Type. | EACH | 15.00 | 0.019412080000 |
| A2214 | Providing and fixing SS floor traps size 100 mm Inlet and 100 mm Outlet all complete as per specification. | EACH | 22.00 | 0.029463730000 |
| 2,216.00 | Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete with minimum three year free maintenance and gurantee. | EACH | 3.00 | 0.105207830000 |
| 2,217.00 | Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete with minimum three year free maintenance and gurantee. | EACH | 1.00 | 0.062746050000 |
| 2,218.00 | Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete. | EACH | 15.00 | 0.031644870000 |
| 2,219.00 | Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification. | EACH | 4.00 | 0.015048130000 |
| 2,220.00 | Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following. | | - | |
| a | 75mm dia pipes | RM | 80.00 | 0.089869350000 |
| b | 100mm dia pipes | RM | 80.00 | 0.118586820000 |
| c | 150mm dia pipes | RM | 40.00 | 0.070538580000 |
| d | 200mm dia pipes | RM | 40.00 | 0.096700340000 |
| 2,221.00 | Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately) | | - | |
| a | 75mm dia | RM | 70.00 | 0.087174050000 |
| b | 100mm dia | RM | 70.00 | 0.106691050000 |
| c | 150mm dia | RM | 100.00 | 0.224092770000 |
| d | 200mm dia | RM | 130.00 | 0.412741750000 |
| 2,222.00 | Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete. | | - | |
| a | Upto 75 mm dia | RM | 40.00 | 0.010827060000 |
| b | 100 mm dia | RM | 40.00 | 0.014219260000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI-2671
BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMP SUM PRICE

| Scope of Work: BHE/PW/PUR/NTPRT-BAL-CVL-BOP/2682 | | | | |
|---|--|-------------|------------|--------------------|
| CIVIL & ARCHITECTURAL WORKS OF BOP WORKS FOR FQA LAB, O&M STORE, CISF BUILDING, MAIN GATE COMPLEX ETC. AT 3X800 MW PVUNL PATRATU STPP JHARKHAND. | | | | |
| Sl. NO | Item Description | Unit | Qty | Weightage % |
| 2,223.00 | Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 50 mm domestic water inlet pipe | NOS. | 3.00 | 0.018559300000 |
| 2,224.00 | Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 150 mm sewer water outlet pipe | NOS. | 3.00 | 0.037118610000 |
| 2,400.00 | ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. | | - | |
| | Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating, shuttering, formwork and curing (excluding cost of reinforcement), with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specification and as per direction of engineer in charge for the following. | | - | |
| 2,401.00 | Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. | CUM | 200.00 | 0.015368710000 |
| 2,402.00 | Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete. | CUM | 20.00 | 0.004377900000 |
| 2,418.00 | Concrete of grade M15 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply cement free of cost as per TCC) | CUM | 49.50 | 0.139717420000 |
| | REINFORCEMENT | | - | |
| | MISCELLANEOUS | | - | |
| A2428 | Providing & laying 75 mm thick precast interlocking concrete pavers of grade M-35 of approved colour and pattern as per specification and recommendation of manufacturer.(payment term- Receipt at Site-65%,Fixing in Position-35%) | SQM | 495.00 | 0.459074990000 |
| A2429 | Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer. | SQM | 9.90 | 0.000547220000 |
| | Total Value of Work | | | 100.00000 |