

**VOLUME-III**  
**PRICE SCHEDULE, REV-00**

**PACKAGE-A: Civil, structural and architectural works for retrofitting of ESP for R&M 4X210 MW  
(U#1,2,3&4) Kahalgaon STPP, NTPC, Bhagalpur, Bihar.**

**Tender no PSER:SCT:KGN-C2141:22**

| <b>SL</b> | <b>PREAMBLE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| 1         | This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender and other tender sections as applicable and shall have precedence over any contrary statement mentioned any where in this document.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2         | The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3         | Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4         | Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule. |
| 5         | Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6         | In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.                                                                                                                                                                                |
| 7         | BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 8         | The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate schedule, the same shall be considered.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 9         | Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| 10 | All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 11 | The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12 | No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 13 | Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modified/alterd by them. Also putting any comments instead of rates/price in the designated column of the rate schedule shall make the offer liable for rejection.                                                                                                                                                                                                                                                     |
| 14 | Bidders to note that for Civil &/Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No. (i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate, if the bidder becomes L-1."                                                                                                                                                                                                                                     |
| 15 | For Lumpsum Service Contract : The items/components indicated in the tender is indicative and may vary to any extent. No compensation shall be payable in case of any variation in the items/components listed in the bill of quantities if the executed weight remains within the variation limit. However, in case of deletion of any item or addition of new items over and above the items listed or variation of existing quantity beyond variation limit specified, adjustment (i.e. Payment or recovery as the case may be ) shall be done on pro-rata basis based on the Rate per MT worked out from the quoted lump-sum Price and the total weight of components listed /indicated in price schedule plus 15% weight variation limit. |
| 16 | Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 17 | No interest, whatsoever, shall be payable by BHEL on the security deposit, any bank guarantee submitted or any amount due to successful bidder/contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 18 | Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.                                                                                                                                                                                 |
| 19 | Bidder's Total price will be shall be considered for evaluation unless stated otherwise.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 20 | In case of BOP packages, if Bidder does not quote/indicate the price for freight charges against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoted price against each item keeping the total quoted price unaltered.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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**TENDER NO - PSER:SCT:KGN-C2141:22**

**SCH-1 - TOTAL PRICE**

| SL NO | DESCRIPTION                                                                                                                                                                      | PRICE SCHEDULE REF                 | <u>TOTAL PRICE (IN INR)</u> |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------|
| 1.0   | <b>Total Price for Civil, structural and architectural works for retrofitting of ESP for R&amp;M 4X210 MW (U#1,2,3&amp;4) Kahalgaon STPP, NTPC, Bhagalpur, Bihar.(PACKAGE-A)</b> | <b>SCH2-BREAKUP OF TOTAL PRICE</b> |                             |

**NOTE**

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| 1.0 | Bidder shall quote total price for total price of SCH-1- Part only at Sl No. 1 above. All other amounts / rates of each item of works in respective schedules / parts will be derived based on allocated percentages. As such, any uncalled figure/ amount noted at any other place / schedule of Volume-III will not be reckoned & will stand null & void.                                                                                                                       |
| 2.0 | Bidder to note that total price at Sl No. 1 above shall be considered for evaluation & awarding. As such grand total price should be complete in all respect for the full scope defined and considering all terms and conditions.                                                                                                                                                                                                                                                 |
| 3.0 | Bidder's quoted total price of SCH-2 at Sl. No 1 above, respectively shall be apportioned into amount of various items of works based on allocated percentages against respective item, in respective schedules / parts. As such, bidder shall not indicate / quote any amount / rate in these schedules / parts and any amount / rate quoted against any item shall not be taken into cognizance / account and offer may be liable for rejection.                                |
| 4.0 | Based on the itemwise percentage allocations, the amount for the individual items of the Bill of Quantity shall be arrived at. The rates of individual items shall be derived from the amount against each items after rounding off .                                                                                                                                                                                                                                             |
| 5.0 | Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.4.0 above.                                                                                                                                                                                                                                                                                                          |
| 6.0 | Based on the itemwise percentage allocations, the amount for the individual items of the Bill of Quantity shall be arrived at. The rates of individual items shall be derived from the amount against each items and its quantity after rounding off to upto 9 decimal places. However, RA bill payment shall be done after rounding off the gross amount to two decimal points. Any adjustment, if required, due to such methodology, will be effected / adjusted in final bill. |
| 7.0 | Any item as per scope of work, if not included in the price quoted above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.                                                                                                                                                                                                                                                                                                        |
| 8.0 | Price format shall not be changed by bidder in any case and it may lead to cancellation of their offer.                                                                                                                                                                                                                                                                                                                                                                           |
| 9.0 | The quoted price shall be excluding GST including freight on FOR site basis.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 10  | The quantity of items may vary during execution mainly due to actual requirement etc. The unit rates work out from the overall amount quoted & accepted by BHEL shall be considered and no separate unit rates shall be allowed. Unit rates shall be valid throughout the contract period.                                                                                                                                                                                        |

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**SCH-2 - PACKAGE A- BREAKUP OF TOTAL PRICE**

| ST. NO     | DESCRIPTION OF ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | UNIT | QTY          | WEIGHTAGE  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------|------------|
| <b>100</b> | <b>EARTH WORK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |              |            |
|            | <b>Earth work In excavation, backfilling and disposal including necessary men / women, materials, equipment, loading, transportation, unloading, dewatering etc. all complete as per customer &amp; contract specification and drawing and as directed by engineer- in-charge for the following.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |              |            |
| 101        | Earth work in excavation in <b>all types of soil including ash</b> which can be excavated by any means including setting out, levelling, <b>dewatering (but excluding special type of dewatering viz. well point method)</b> , sheeting, shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming / compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead up to 500 m, spreading / levelling of disposed materials etc. all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                      |      |              |            |
| a          | Depth from ground level but not exceeding 2 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CUM  | <b>4140</b>  | 0.00817337 |
| b          | Depth exceeding 2 m but not exceeding 4 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | <b>2825</b>  | 0.00687103 |
| c          | Depth exceeding 4 m but not exceeding 6 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | <b>200</b>   | 0.00062028 |
| 107        | Back filling up to any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding <b>300 mm thickness using / with selected materials from compulsorily excavated soil available within a lead up to 500m</b> and compacted as specified including re-excavation of stacked earth, watering, ramming / compaction by manual / mechanical means, dressing etc. all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                         |      |              |            |
| b          | Each layer compacted so as to achieve 90% of the standard proctor density at OMC. as per IS-2720 (Part-VII)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CUM  | <b>10115</b> | 0.01502089 |
| 109        | Extra over ST No. 101 and 107 for carriage of excavated earth / selected materials for every 1 km or part thereof by Mechanical means beyond an initial lead of 500m.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |              |            |
| a          | Carriage beyond 500 m and not exceeding 1 Km                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CUM  | <b>1600</b>  | 0.00020842 |
| b          | Carriage beyond 1 Km and not exceeding 2 Km                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CUM  | <b>6200</b>  | 0.00134143 |
| c          | Carriage beyond 2 Km and not exceeding 3 Km                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CUM  | <b>428</b>   | 0.00010654 |
| <b>200</b> | <b>CONCRETE WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |              |            |
|            | <b>Providing and placing concrete work including cost of labour, materials 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. all complete as per customer &amp; contract specification and drawing.(Cement will be supplied by BHEL free of cost unless otherwise noted.)</b>                                                                                                                                                                                                                                                                                                                                                     |      |              |            |
|            | Note:<br><u>Cement</u> - Fly ash based portland pozzolana cement conforming to IS:1489 (Part - 1) shall preferably be used ( unless required otherwise to counteract soil water chemical environment). However, the contractor may use portland slag cement conforming IS:455 or ordinary portland cement conforming to IS:269 or IS:8112.<br><u>Coarse aggregate</u> - Coarse aggregate for concrete shall be chemically inert, hard, strong, durable against weathering of limited porosity and free from deleterious materials. It shall be properly graded. It shall meet the requirement of IS:383,<br><u>Fine aggregate</u> - Sand shall be hard, durable, clean and free from adherent coatings of organic matter and clay balls or pellets. Sand, when used as fine aggregate in concrete shall conform to IS:383. |      |              |            |
| 201        | <b>Plain Cement Concrete of grade M 7.5</b> (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations / floors, mass fill etc. all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | <b>99</b>    | 0.00686086 |
| 202        | <b>Plain Cement Concrete of grade M 10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations / floors, mass fill etc aAll complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CUM  | <b>12</b>    | 0.00085099 |

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| 204 | Providing and laying Design Mix Reinforced Cement Concrete <b>under floors, paving, plinth protection, pipe encasing, column encasing etc complete</b> with 20 mm nominal size graded aggregate at any depth below finished floor level. All complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                  |     |      |            |
| a   | <b>M20 Grade</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CUM | 7    | 0.00048909 |
| 205 | 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 <b>foundations / substructure, grade slab, paving, drains, under floors etc at any level below finished floor level</b> , any shape, position or thickness etc complete including use of plasticizer / super plasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per customer & contract specification and drawing.                                                 |     |      |            |
| a   | <b>M25 Grade</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CUM | 1640 | 0.12063546 |
| 206 | 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 <b>superstructure at any level above</b> finished floor level, any shape, position or thickness etc complete including use of plasticizer / super plasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per customer & contract specification and drawing.                                                                                                            |     |      |            |
| a   | <b>M25 Grade</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CUM | 510  | 0.03777305 |
| 210 | Providing and laying Design Mix cement and <b>encasing of structural steel</b> 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. all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                           |     |      |            |
| b   | <b>M25 grade</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CUM | 15   | 0.00110098 |
| 214 | Providing and laying Design Mix cement concrete as per IS:456, IS:3370 & IS:10262 2009 for reinforced concrete works using graded aggregate for Concrete in water retaining / conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS:9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades all complete as per customer & contract specification and drawing. |     |      |            |
| a   | <b>M 25 grade</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CUM | 4    | 0.00034789 |
| 215 | <b>Dismantling concrete work</b> for all types of structures at all levels including stacking of serviceable material to a lead of 500 m and disposal of unserviceable material up to a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc. all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                |     |      |            |
| b   | Reinforced cement concrete of all grades                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CUM | 428  | 0.01296936 |
| 300 | <b>FORM WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |      |            |
|     | <b>Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing complete including pockets etc. all complete as per customer &amp; contract specification and drawing and as per direction of engineer in charge for the following.</b>                                                                                                                                                                                                                                                               |     |      |            |
| 301 | <b>Fairface form work</b> with good quality water proof ply wood of required thickness and smooth surface <b>below finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.                                                                                                                                                                                                                                                                                                                                                | SQM | 1847 | 0.01931642 |
| 302 | <b>Fairface form work</b> with good quality water proof ply wood of required thickness and smooth surface <b>above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights all complete as per customer & contract specification and drawing and as per direction of engineer-in-charge.                                                                                                                                                                             | SQM | 1966 | 0.02448576 |
| 400 | <b>REINFORCEMENT INCLUSIVE OF PILING WORKS(Reinforcement steel will be supplied by BHEL free of cost.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |      |            |
| 402 | Transportation from store, Straightening, cutting, bending, placing in position at any level, binding in position <b>High yield deformed bar of IS: 1786 (Fe. 500)</b> with minimum 14.5 percent elongation. All complete as per customer & contract specification and drawing and as per direction of engineer in charge.                                                                                                                                                                                                                                                                                   | MT  | 341  | 0.0727319  |

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| <b>500</b> | <b>WATER PROOFING WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |            |            |
|            | <b>Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level. All complete as per customer &amp; contract specification and drawing. (cement will be supplied by BHEL free of cost unless otherwise noted).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |            |            |
| 501.a      | Providing roof water treatment as following, including all material, labour, equipments, transportation, handling etc. all complete as per customer & contract specification and drawing.<br>i) Providing and laying polymerised mastic over the RCC roof as a primary coat.<br>ii) Application of high solid content liquid applied urethane base elastomeric water proofing membrane, over the primer coat, to give uniform joint less dry film thickness of minimum 1.5 mm (as per ASTM C 898-89 and 836-89a).<br>iii) For efficient disposal of rain water, the run off gradient for the roof shall not be less than 1:100. This gradient shall be provided by screed concrete M-15 (using 12.5 mm coarse aggregate) and / or cement mortar (1: 4) over the elastomeric water proofing membrane with 25mm thick cement mortar (1:4) topping. Roof drain level shall be provided with 45cm x 45cm x 30mm thick khurras with 1:2:4 PCC over PVC sheet of 1m x 1m x 400 micron (thick) & finished with 12mm thick 1:3 cement sand plaster.<br>iv) Wearing course at top shall consist of 25 mm thick PCC (M15) cast in panels reinforced with 0.56 mm diameter galvanised chicken mesh & sealing of joints using sealing compound / elastomeric water proofing membrane.<br><b>Cost of khurras shall be paid separately.</b> | SQM  | <b>455</b> | 0.0226692  |
| 516        | Providing and making making 45cm x 45cm khurras with minimum 30mm of 1:2:4 PCC over PVC sheet of 1m x 1m x 400 micron thk. & finished with 12 mm thick 1:3 cement sand plaster etc. all complete as per approved drawings, directions of engineer in charge and customer specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | each | <b>19</b>  | 0.00028143 |
| 517        | Providing and laying <b>24 / 20 SWG Chicken wire mesh</b> to slope in panels not exceeding 6 sq.m area over roof slab, encasing of steel structures etc. all complete as per customer specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | <b>40</b>  | 0.00039709 |
| <b>700</b> | <b>MS EMBEDMENTS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |            |            |
| 703        | <b>Fixing of mild steel embedments, BOLTS assembly, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates, anchor bolts and its assembly of various diameters, plates of dimensions as required etc. including scaffolding, setting in position and / or, transportation from BHEL site stores to work spot etc. All complete as per customer &amp; contract specification and drawing.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MT   | <b>7</b>   | 0.00281803 |
| <b>800</b> | <b>GROUTING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |            |            |
|            | <b>Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer-in-charge all complete as per customer &amp; contract specification and drawing. (Cement will be supplied by BHEL free of cost unless otherwise noted.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |            |            |
| 802        | Providing & grouting of <b>pocket holes, pipe sleeves and under base plates</b> of structural steel work/ machinery / pipe supporting structures etc including roughening of surface, cleaning, ramming, curing etc. all complete with nonshrink cementitious flowable grout (Fosroc OR EQUIVALENT) of minimum <b>Grade M-30</b> . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor) all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CUM  | <b>3</b>   | 0.00287069 |
| <b>900</b> | <b>DOORS, WINDOWS, VENTILATORS, LOUVERS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |            |            |
|            | <b>Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer-in-charge all complete as per customer &amp; contract specification and drawing.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |            |            |
| 903        | Providing, fitting and fixing solid core flush door shutter e 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, 35mm x 12 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, 16mm x 300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges all complete as per customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                    | SQM  | <b>3</b>   | 0.00035567 |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |     |            |
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| 904 | Providing and fixing of steel doors double flush type steel construction of 35 mm (minimum) thickness panels (two outer sheet) and connecting stiffeners of 18G (1.25mm) thick sheet with mineral wool insulation between two sheets .The door frame shall be of pressed steel construction of 16G (1.6mm) thick sheet, rubber sealing,complete with all hardware and fixtures like door closer, tower bolts, handles, stoppers, stiffeners, aldrops etc., side, top and bottom edges of the shutters be reinforced by continuous pressed steel channel of minimum 1.2mm thick all complete as per contract specifications .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |     |            |
| i   | Single shutter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SQM  | 5   | 0.00083108 |
| 906 | Providing and fixing <b>anodized extruded aluminium doors</b> (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of INDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 electro statically powder coated (min 30 microns) 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 as per specified thickness, conforming to IS:2553 including rubber lining or EPDM gasket and extruded anodised aluminium beading, snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc. all complete as per customer & contract specification and drawing. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. <b>Glazing shall be paid separately.</b>                                                                                                                                                                                                                                                                                                                                                            | SQM  | 19  | 0.00556868 |
| 907 | Providing and fixing <b>fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 1.6mm galvanized steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved pos office / signal red colour fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SQM  | 8   | 0.00171045 |
| 909 | Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard and other sections including all fittings & fixtures and accessories of approved make conforming to IS:733 and IS:1285, electro statically powdered coated (min 30 microns) to required shade, 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 all complete as per customer & contract specification and drawing. <b>Glazing and panelling shall be paid separately. Weight of aluminium section only shall be measured.</b> | Kg   | 100 | 0.00141941 |
| 911 | Providing and fixing of <b>door closers</b> as per IS:3564 ,of approved make & quality all complete of following type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |     |            |
| a   | Over head hydraulic door closures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Each | 5   | 0.00015535 |
| b   | Floor mounted Hydraulic door closers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Each | 11  | 0.00070984 |
| 912 | 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 customer & contract specification and drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Kg   | 100 | 0.00027939 |
| 913 | Providing and fixing in position rolling shutters of approved make as per IS:6248, made of 75mm x 1.2mm hot rolled double dipped galvanized steel laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3 coats of approved enamel paint etc. all complete as per customer & contract specification and drawing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |     |            |
| c   | Electrically operated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SQM  | 24  | 0.0046116  |
| 915 | Providing, fixing and fitting of <b>glazing</b> in steel / aluminium / wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. Below mentioned glass thickness are bare minimum only and actual thickness will depend on the panel size of the glazing to be provided. Glazing shall have uniform refractive index all complete as per customer & contract specification and drawing. <b>(Note - Payment shall be made on measured clear area after gasket/sealant Only)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |            |
| h   | 6 mm thick toughened glass plain / tinted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SQM  | 45  | 0.0021641  |

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| 917         | Providing and fixing <b>12 mm thick BWP Homogeneous particle board</b> , decorative veneer (prelaminated) on both sides bonded with BWP type Phenol Formaldehyde Synthetic resin confirming to IS:3087, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete as per customer & contract specification and drawing. (excluding aluminium works)                                                                                                                     | SQM | <b>3</b>    | 0.00012739 |
| <b>1000</b> | <b>BRICKWORK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |             |            |
|             | <b>Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer-in-charge. with burnt clay bricks / fly ash bricks / solid concrete blocks / hollow concrete blocks all complete as per customer &amp; contract specification and drawing.(cement will be supplied by BHEL free of cost unless otherwise noted). (Cement for producing flyash brick shall be in the scope of contractor)</b> |     |             |            |
| 1002        | Providing <b>brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers</b> etc. in thickness 230mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc All complete as per customer & contract specification and drawing.                                                                                                                                                                                                             |     |             |            |
| a           | Using <b>fly ash lime bricks</b> confirming to IS:12894 with crushing strength of 75 kg/cm2                                                                                                                                                                                                                                                                                                                                                                                                                      | CUM | <b>120</b>  | 0.01638012 |
| 1003        | Providing <b>brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers</b> 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 as per customer specifications:                                                                                                                                            |     |             |            |
| a           | Using <b>fly ash lime bricks</b> confirming to IS 12894 with crushing strength of 75 kg/cm2                                                                                                                                                                                                                                                                                                                                                                                                                      | SQM | <b>25</b>   | 0.00044501 |
| <b>1100</b> | <b>DAMP PROOF COURSE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |             |            |
|             | <b>Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level all complete as per customer &amp; contract specification and drawing and directed by engineer-in-charge.(Cement will be supplied by BHEL free of cost unless otherwise noted.)</b>                                                                                                                                                                                     |     |             |            |
| 1101        | Providing Damp Proof Course 50mm thick 1:1.5:3 cement concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete as per IS:2645. 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 all complete <b>as per customer specifications &amp; drawing.</b>                                                                                                                                 | SQM | <b>30</b>   | 0.00020384 |
| <b>1200</b> | <b>CEMENT MORTAR PLASTER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |             |            |
|             | <b>Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing, chicken mesh etc at any level. All complete as per customer &amp; contract specification and drawing and directed by engineer-in-charge.(Cement will be supplied by BHEL free of cost unless otherwise noted.)</b>                                                                                                                                                                      |     |             |            |
| 1201        | Providing <b>18mm thick plaster</b> in two layers <b>outside</b> the building / boundary wall in cement mortar <b>1:6</b> on walls, finished to a smooth finish including providing 3mm x 3mm size grooves at junctions of two dissimilar materials all complete.                                                                                                                                                                                                                                                | SQM | <b>650</b>  | 0.00474632 |
| 1202        | Providing <b>12mm thick plaster inside</b> the building wall in cement mortar 1:6 on walls finished to a smooth finish all complete as per customer specifications.                                                                                                                                                                                                                                                                                                                                              | SQM | <b>1160</b> | 0.00735279 |
| 1204        | Providing <b>6mm thick plaster on ceiling</b> in cement mortar 1:4 finished to a smooth all complete as per customer specifications.                                                                                                                                                                                                                                                                                                                                                                             | SQM | <b>455</b>  | 0.00281318 |
| 1205        | Providing <b>12mm thick plaster in walls, drains / culverts</b> in cement mortar 1:4 finished to a smooth with a paste of <b>neat cement</b> @ 1kg/sqm and rubbed smooth with trowel etc. all complete.                                                                                                                                                                                                                                                                                                          | SQM | <b>100</b>  | 0.00032437 |
| 1208        | Providing <b>drip course</b> on plastered surface with 1:3 cement sand mortar 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 instructions of engineer in charge.                                                                                                                                                                                           | RM  | <b>175</b>  | 0.00067833 |
| <b>1300</b> | <b>FINISHES TO CONCRETE / PLASTERED SURFACES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |             |            |
|             | <b>Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level All complete as per customer &amp; contract specification and drawing and directed by engineer-in-charge.</b>                                                                                                                                                                                                                                                |     |             |            |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |      |            |
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| 1315 | Providing and applying two or more coats of Premium Acrylic emulsion paints based weather coat. The paint shall be (premium acrylic smooth exterior paint with silicon additives) of approved brand and manufacture. This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Employer. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Employer. The cost is all including of base coat, primer shade etc. to meet the customer requirement all complete as per customer & contract specification and drawing and directed by engineer-in-charge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SQM | 650  | 0.00185167 |
| 1400 | <b>FLOORING AND SKIRTING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |      |            |
|      | <b>Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer-in-charge(cement will be supplied by BHEL free of cost unless otherwise noted).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |      |            |
| 1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm 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 as per customer & contract specification and drawing and directed by engineer-in-charge. (Quoted item rate shall be inclusive of providing glass joint strips).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SQM | 1100 | 0.01221132 |
| 1500 | <b>ROOF/CLADDING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |      |            |
|      | <b>Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces, sealant, rock wool insulation, glass wool insulation etc. including all roofing and cladding accessories such as ridges and hips, flashings, trimmings, closure for vertical and horizontal joints, cappings etc. confirming to the same material requirements at any level all complete as per customer &amp; contract specification and drawing and directed by engineer-in-charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |      |            |
| 1502 | Providing & fixing floor / roof decking troughed permanently colour coated metal decking sheets Thickness tolerance of (+/-) 0.04mm including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners (as per specification) with suitable cap, flashing etc. all complete. Steel shall be colour coated with total coating thickness of at least 40 microns (nominal) comprising of silicon modified polyester (SMP with silicon content of 30% to 50%) paint or Super Polyester paint, of minimum 20 microns (nominal) dry film thickness (DFT) on external face over primer coat of minimum 5 microns (nominal) and minimum 10 microns (nominal) SMP or super polyester paint over primer coat of minimum 5 microns (nominal) on internal face. SMP and Super polyester paint systems shall be of industrial finish of product type 4 of AS / NZ2728 and conform to any one of the following:<br>i) either of steel with minimum 0.8mm bare metal thickness (i.e. excluding the thickness of galvanizing / aluminium-zinc coating and painting) of grade G-250 as per AS-1397 / grade SS-255 as per ASTM A653M / grade S-250GD as per EN 10326 with zinc coating to class Z-275<br>ii) or of minimum 0.6mm BMT (i.e. excluding the thickness of galvanizing / aluminium-zinc coating and painting) of grade G-350 as per AS-1397 / grade SS-340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z-275.<br>iii) or of steel of minimum 0.6mm BMT (i.e. excluding the thickness of galvanizing / aluminium-zinc coating and painting) of grade G-550 as per AS-1397 / grade SS-550 as per ASTM A792M / grade S-550GD as per EN 10326 with zinc coating to class Z-275.<br>Alternatively aluminium feed material of minimum bare metal thickness of 0.9 mm of aluminium alloy of Series 31000 and above as per IS:737 and IS:1254 can also be used for metal decking. |     |      |            |

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|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|------------|
| a           | span upto 1800mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | sqm     | <b>1780</b> | 0.05481005 |
| 1503        | Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams shall conform to Type-B studs specified in AWS D1.1 / D1.1M or equivalent as shear connector of 19mm diameter and 100mm length manufactured from cold drawn round steel bars conforming to the requirement of 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Qunital | <b>5</b>    | 0.00197926 |
| <b>1700</b> | <b>RAIN WATER DOWN TAKE PIPES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |             |            |
|             | <b>Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer-in-charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |             |            |
| 1703        | Providing and fixing <b>Medium grade galvanised mild steel downtake pipes</b> of minimum 100mm dia. Provided with welded joints and with grating shoe bends, junctions, brackets, cast iron clamps & painted with anticorrosive paint ove coat of primer. Galvanisation shall be as per IS:4736 etc. all complete as per customer specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | RM      | <b>120</b>  | 0.00520357 |
| <b>1800</b> | <b>MISCELLANEOUS WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |             |            |
|             | <b>Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified. All complete as per customer &amp; contract specification and drawing and directed by engineer-in-charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |             |            |
| 1801        | <b>Providing and Filling in trenches, plinths, area paving and other underground structures with rubble soling stone</b> (63 mm down graded hard stone aggregate as per IRC specification in layers not exceeding 230 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     | <b>20</b>   | 0.00096243 |
| <b>2300</b> | <b>STRUCTURAL STEEL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |             |            |
|             | <b>STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge for the following:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |             |            |
| 2301        | Transportation from store, Fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161 / IS:1239, chequered plate conforming to IS:3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, kick plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings etc. connection design & preparation of fabrication drgs, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (minimum preheat and interpass temperature of 20° C for welding over 20 mm and up to 40 mm & 66° C for welding over 40 mm and up to 63 mm & 110° C for thickness over 63 mm & use of low hydrogen / radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. <b>(Structural steel will be supplied by BHEL free of cost)</b> |         |             |            |

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|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------|
| a)   | Fabrication                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MT  | 220 | 0.10007019 |
| b)   | Erection, alignment, welding                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MT  | 220 | 0.0804415  |
| 2302 | Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.                                                                                                                                                             | MT  | 220 | 0.01633964 |
| 2303 | Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1Kg of primer mix shall be consumed for priming of 4 to 5 m <sup>2</sup> area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting etc. all complete.                                                                                                                                                        | MT  | 2   | 0.00004682 |
| 2304 | Extra over ST No. 2301 for providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.                                                                                                                   | MT  | 2   | 0.00008801 |
| 2305 | Extra over ST No. 2301 for Providing and applying two coats of epoxy based colour finish paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.                                                                                                          | MT  | 2   | 0.00009633 |
| 2307 | Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk- ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.                 | MT  | 15  | 0.03523055 |
| 2320 | Supply, fabrication and fixing of <b>MS pipe hand railing</b> of 32 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. <b>all complete as per customer Specifications .</b>                                                                                                                                                                                                                                                                                         | KG  | 785 | 0.00171571 |
| 2321 | Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.                                                                                                                                                                                                                                                                                                                                                           | RM  | 85  | 0.00469757 |
| 2322 | Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.                                                                                                                                                                                                                                                                                                                                                            | RM  | 11  | 0.00020701 |
| 2323 | Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.                                                                                                                                                                                                                                                                                                                      | SQM | 21  | 0.00025893 |
| 2324 | Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.                                                                                                                                                                                                                                                                                                                                                     | RM  | 11  | 0.00017363 |
| 2325 | Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)                                                                                                                                                                                                                                                           | RM  | 185 | 0.00275437 |
| 2326 | Painting of steel surfaces embedded in Concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |            |
| a)   | For the portion of steel surfaces embedded in Concrete, the surface shall be prepared by manual Cleaning and provided with Primer Coat of Chlorinated Rubber based Zinc Phosphate Primer of minimum 50 micron Dry Film Thickness (DFT)                                                                                                                                                                                                                                                            | MT  | 70  | 0.00052945 |
| b)   | All threaded and other surfaces of foundation bolts and its materials , insulation pins, Anchor channels, Sleeves etc shall be coated with temporary rust preventive fluid and during execution of Civil works, the dried film of coating shall be removed using organic solvents.                                                                                                                                                                                                                | MT  | 5   | 0.00004412 |
| 2327 | Painting of steel surfaces (other than those embedded in concrete including steel doors, rolling shutters, windows, in all indoor & outdoor structures                                                                                                                                                                                                                                                                                                                                            |     |     |            |
| a)   | Primer coat shall consist of 2 coats of red-oxide zinc-chromate primer (minimum 25 micron Dry Film Thickness – DFT each). Intermediate (Under) coat (minimum 60 micron DFT) shall be of synthetic enamel paint of approved shade and colour as per accepted standards. Top / Finish coat (minimum 50 micron DFT) shall be of synthetic enamel paint of approved shade and colour with glossy finish as per accepted standards. Colour and shade of the coat shall be as approved by the Employer. | MT  | 155 | 0.01925427 |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |            |            |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|------------|
| 2500 | <b>PILING WORKS (Cement &amp; Reinforcement steel will be supplied by BHEL free of cost).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |            |            |
| 2501 | Mobilisation of hydraulic rotary piling rigs and accessories capable of pile boring / drilling in all types of strata / installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete as per specification. 50% payment shall be paid against mobilisation and 50% against demobilisation (after completing the piling work)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Each | <b>1</b>   | 0.0363095  |
| 2502 | Mobilisation of conventional DMC / RMC / TMR piling rigs and accessories capable of pile boring / drilling in all types of strata / installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete. 50% payment shall be paid against mobilisation and 50% against demobilisation (after completing the piling work)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Each | <b>2</b>   | 0.00464264 |
| 2503 | Installation of Bored cast-in-situ RCC vertical pile as per IS:2911 (Part 1 Sec 2) with diameter and length as specified (length to be measured from pile cut-off level to the bottom of pile) using cement concrete grade M25 conforming to IS:456 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete using cement as per specification including transportation of materials of steel & cement from BHEL store, providing all materials, bending & fixing of reinforcement for which measurement / payment shall be made separately under item no. 401, 402, boring / drilling in all types of soil, ash, rock etc. providing bentonite slurry and / or casing for stabilization of pile bore, flushing of pile bore shall be ensured by airlift technique, cleaning, providing plasticizer wherever required, dismantling of pile head etc <b>including empty boring from ground level to pile cut-off level</b> etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. (Reinforcement steel & cement will be supplied by BHEL at free of cost) |      |            |            |
| d    | Pile with 600 mm diameter and 20 m length below cut off level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | each | <b>98</b>  | 0.11438559 |
| 2504 | Extra over ST. No. 2503 for pile length more than the specified length of 20m below cut off level for the following.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |            |            |
| c    | For 600 mm diameter pile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rm   | <b>686</b> | 0.04340499 |
| 2509 | Conducting routine load test upto 1.5 times the allowable pile capacity on single job pile as specified in accordance with IS 2911 (Part-4) including preparation of pile head for testing, necessary excavation, providing all arrangements of loading, unloading, test equipments/accessories, jacks, recording of results, labour, submission of test report etc but excluding the cost of installation of job pile complete as per specification, drawing and as directed by the engineer-in-charge for the following.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |            |            |
| a    | For vertical compression test by direct load methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |            |            |
| ii   | For 600 mm diameter pile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | each | <b>2</b>   | 0.01720141 |
| b    | For lateral load test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |            |            |
| ii   | For 600 mm diameter pile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | each | <b>3</b>   | 0.01805397 |
| 2510 | Carrying out <b>low strain pile integrity test</b> on 600mm diameter pile including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc but excluding the cost of installation of job pile all complete as per specification and as directed by the engineer-in-charge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Each | <b>215</b> | 0.01721842 |
|      | <b>TOTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |            | 1.0000000  |