



# भारत हेवी इलेक्ट्रिकल्स लिमिटेड

( भारत सरकार का उपक्रम )

## BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 03

Ref: PSER:SCT:BRM-C1273:TCN-03

Date: 23-11-2011

Sub	Tender change notice (TCN) 03	
Job	(i)PKG-A: Civil,structural and architectural works including piling and ground improvement etc of 1x250 MW unit # 8 for 2x 250MW units at Barauni TPP,Begusarai, Bihar. (ii)PKG-B: Civil,structural and architectural works including piling and ground improvement etc of 1x250 MW unit # 9 for 2x 250MW units at Barauni TPP,Begusarai, Bihar.	
Ref	1.0	Tender no PSER:SCT:BRM-C1273:11
	2.0	BHEL's NIT, vide reference no PSER:SCT:BRM-C1273:2584, dated 05-11-2011.
	3.0	BHEL's TCN-01 issued vide reference no PSER:SCT:BRM-C1273:TCN-01, dated 15-11-2011.
	4.0	BHEL's TCN-02 issued vide reference no PSER:SCT:BRM-C1273:TCN-01, dated 22-11-2011.
	5.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

With reference to above in line with Pre- bid discussion (held on 19-11-2011), following points/ documents relevant to tender may please be noted and complied with while submitting the offer.

- 1.0 Revised Volume-IF (Rev-01)-(Technical Conditions of Contract) , superseding Volume-IF issued earlier along with NIT.
- 2.0 Revised BOQ cum price schedule format VOL-III- PRICE SCHEDULE, REV-01 superseding VOL-III PRICE SCHEDULE, REV-00 issued earlier along with NIT.  
**Bidders are requested to submit their offer as per revised BOQ (Rev-01) only.** Offer from bidders in superseded price schedule (Vol-III, REV-00) shall not be considered. Bidders are also requested to submit a declaration in techno-commercial offer that they have submitted their price bid in sealed envelope as per **REVISED price schedule format (VOL-III- PRICE SCHEDULE, REV-01).**
- 3.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 4.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

ENGINEER(SCT)

Encl:

- 1.0 Revised BOQ cum price schedule format (VOL-III- PRICE SCHEDULE, REV-01)
- 2.0 Revised Vol.1F,(Rev.01)
- 3.0 Revised format of 'No deviation certificate'.

पावर सेक्टर पूर्वी क्षेत्र ( मुख्यालय )

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691/ 23211798/ 23211795

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

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These Special conditions shall be construed as part of tender document and shall be read along with General Conditions of Contract. In case of any conflict or inconsistency between the general and these Technical conditions, the same shall be brought out by the bidder in writing to BHEL for clarification during pre-bid discussions; failing which most stringent interpretation / clause in favour of BHEL shall be adopted and the same shall be binding to the contractor.

CLAUSE NO	DESCRIPTION
1.0	<b>PROJECT SYNOPSIS AND GENERAL INFORMATION</b>
	INTRODUCTION
2.0	<p><u>Details of proposed stage/ units</u>  Project name: <b>BARAUNI THERMAL POWER PLANT -2x250 MW EXTENSION PROJECT</b>  No of units x capacity: <b>2 x 250 MW.</b>  Project setting up by: <b>Bihar State Electricity Board (BSEB)</b></p> <p>Bihar State Electricity Board, hereafter referred to as BSEB, has awarded BHEL the job for establishing two numbers of coal fired of rating 250 MW each on Engineering, Procurement and Construction (EPC) package basis The units are proposed to be set up adjoining existing plant at Barauni Thermal Power Station, Extension unit 8 &amp;9 at district Begusarai in the state of Bihar, India.  Project site is disposed at N25<sup>0</sup>23'13.5" to N N25<sup>0</sup>23'54"latitude and E 86<sup>0</sup>01'05" to 86<sup>0</sup>01'46.3" longitude,</p> <p>It is essential that the bidder visit site and acquaint with the conditions prevailing at site before submission of the bid . The information given hereunder is for general guidance and shall not be contractually binding on the/ BHEL.</p> <p><b>APPROACH TO SITE</b></p> <p>LOCATION :Barauni Thermal Power Station, Begusarai, Bihar</p> <p>NEAREST RAILWAY STATION : Hathidah Railway Station (Broad Gauge) on Howrah-Patna route is about 3.5 KM away from the site.  : Barauni Railway Station (Broad Gauge) on Howrah-Muzzafarpur route is about 15 KM away from the site.</p> <p>ROAD DISTANCES : NH-31 is adjacent to site.</p> <p>NEAREST AIR PORT : Patna, 110 KM away from Barauni.</p> <p>MODE OF TRANSPORTATION : Rail/Road</p> <p>DESIGN AMBIENT TEMPERATURE: 35.2 Deg.C maximum, 12.1 Deg.C minimum,</p> <p>DESIGN RELATIVE HUMIDITY : 98% (Maximum)</p> <p>AVERAGE ANNUAL RAINFALL : 1003.4 MM</p> <p>SEISMIC ZONE : Zone-IV as per IS-1893 Part-I (2002)</p> <p>WIND SPEED : 47 m/s</p> <p>Owner: Bihar State Electricity Board (BSEB)</p> <p><b>Site visit:</b> The bidder must visit the actual site of 2x250 MW Barauni Extension Thermal Power Project, to acquire full knowledge and information about the conditions prevailing at site as well as, in and around the project site, together with the statutory, obligatory, mandatory requirements of various authorities before submission of the bid.</p>
3.0	<b>SCOPE OF WORK</b>
3.1	The scope of works covers Civil including bore cast –in –situ piling work, structural & architectural

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	<p>works as per specification including supply of all materials (Other than those being supplied by BHEL), labour, tools and plants. The scope of work is indicative but not limited to the given below –</p> <p><b>A) Package-A/UNIT 8</b></p> <ul style="list-style-type: none"> <li>• Below ground earthmating of PB-1 area upto switchyard fencing</li> <li>• Transformer yard</li> <li>• Compressor house</li> <li>• Service Bldg</li> <li>• DG Building</li> <li>• ACW pump house</li> <li>• CW pipe corridor within PB-1area</li> <li>• Boiler unit-8 foundation</li> <li>• Mill unit -8 foundation</li> <li>• PA/FD/ID of unit-8 foundation</li> <li>• ESP control room unit-8</li> <li>• All misc. Fdn within PB-1 area</li> <li>• All cable trenches within PB -1 area</li> <li>• All pipe racks (Fdn,superstructure)within PB-1 area</li> <li>• All roads, drains and RCC pavement within PB-1 area</li> </ul> <p><b>B) Package-B/UNIT 9</b></p> <ul style="list-style-type: none"> <li>• Below ground earthmating of PB-2 area upto switchyard fencing</li> <li>• Transformer Yard</li> <li>• ACW pump house</li> <li>• CW pipe corridor within PB-2 area</li> <li>• Power House unit-9 building</li> <li>• Boiler unit-9 foundation</li> <li>• Mill unit -9 foundation</li> <li>• PA/FD/ID of unit-9 foundation</li> <li>• ESP control room unit-9</li> <li>• All misc. Fdn within PB-2 area</li> <li>• All cable trenches within PB -2 area</li> <li>• All pipe racks (Fdn,superstructure)within PB-2 area</li> <li>• All roads and drains and RCC pavement within PB-2 area</li> </ul>
3.2	Any buried pipe/ cable coming in the working fronts are to be removed safely by the contractor and payment shall be made as per rate schedule.
3.3	The work to be performed under this specification consists of providing all labour, materials, consumables, equipment, temporary works, temporary storage sheds, temporary colony for labour and staff, temporary site offices, constructional plants, transportation/handling and all incidental items not shown or specified but reasonably implied or necessary for the completion of subject scope, all in strict accordance with the specifications including revisions and amendments thereto as may be required during the execution of work.
3.4	The scope shall also include setting up by the bidder a testing laboratory in the field to carry out all relevant tests, Non Destructive Testing etc., complete as per Quality Plan/Customer requirements.
3.5	All quality standards, tolerances, welding standards & other technical requirements shall be strictly adhered to. The Bidder shall fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, soil conditions, local conditions and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may not have been specifically brought out in the specifications.
3.6	This tender document shall be applicable for both Package-A & Package-B unless otherwise specifically indicated about applicability of specific clauses for Package-A or Package-B.
3.7	The work of Package-A & Package-B shall be awarded to different bidders.

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<b>4.0</b>	<b>DEVIATIONS/CLARIFICATIONS</b> The bidder is required to submit his offer in the relevant schedule/ format without any ambiguity. Any assumptions, presumptions, deviations etc. indicated or implied anywhere by the bidder except those indicated in the deviation schedule/ format will not be recognized and will not form a part of consideration / offer. In the absence of such filled-up schedule/ format it will be understood and agreed that the bidder's offer is based on strict conformance to the specification and no negotiation would be allowed in this regard. BHEL reserve the right not to recognize any / all deviations submitted after opening of the bid.
<b>5.0</b>	<b>DEWATERING</b> Contractor shall ensure at all times that his work area & approach/ access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.
<b>6.0</b>	<b>LAND</b>
6.1	Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erection agencies. Contractor shall develop these areas for their site office, covered storage shed, various open yard, fabrication yard, batching plant yard etc including grass/ tree cutting, leveling, grading etc as applicable. <b>Bidder must visit site to assess site condition, prior to quoting.</b>
6.2	Land outside plant adjacent to boundary wall within 2KM will be provided (if available within construction period) for labour colony free of cost. Contractor will arrange temporary fencing, levelled the area according to their requirement, drinking water, sanitation, construction of temporary colony/hutment, electricity as per their requirements at their own cost.
6.3	The contractor will be responsible for handing back all lands, as handed over to him by BSEB/BHEL.
6.4	Area for fabrication, batching plant and storage area for construction material and equipment shall be provided free of cost.
<b>7.0</b>	<b>WATER</b>
7.1A	To start with the enabling job construction water may be drawn from adjacent river. Drinking water to be arranged by the contractor till borewell Water established. Construction & Drinking water will be provided to the contractor free of cost after the borewell is commissioned.
7.1B	Contractor will operate & maintain two nos for pkg-A and one no in pkg-B borewell pumps (for construction as well as drinking water) as directed by BSEB/BHEL as per BOQ schedule rates within 45 to 60 days. For further distribution of pipeline net work upto power block area are to be carried out by the bidder as per his work plan without any extra cost to BHEL. Contractor will submit enabling work plan showing batching plant, covered cement store 400T capacity, brick manufacturing area, one no under ground open construction water tank (180 to 200 cum capacity), steel yard, temporary fencing / MS gate around steel storage open yard, fabrication yard, hardsurfacing for fabrication yard (part), drinking water spot at two places of power block, roads, open/masonry drain, tower light foundations for general illumination, etc. within fifteen days for approval. Contractor will construct civil laboratories etc. at their own cost.
7.2	DELETED
7.3	Distribution network for drinking water system within power block area shall be done by the bidder at his own cost.
7.4	Contractor should arrange on their own drinking water in their labour colony.
7.5	BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of water supply and the contractor shall claim no compensation for delay in work for such interruption. Contractor may make standby arrangement for water for which no separate payment shall be made by BHEL.
7.6	Bidder will ensure adequate supply of construction water to meet the requirement of water during major concreting.
7.7	The availability of water (construction as well as drinking) in BARAUNI Extension project may be limited. Contractor shall ensure that no water is wasted. In this regard the contractor shall take all necessary measure towards preservation of water.
<b>8.0</b>	<b>ELECTRICITY</b>
8.1	CONSTRUCTION POWER :-

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	<p>BSEB/BHEL Shall Provide Construction Power free of charge at 415V level at one point (300 M away from workplace). Contractor has to make his own distribution arrangement to draw electricity at batching plant, fabrication yard, power block area.</p> <p>Work area illumination: Vendor will have to provide general illumination ( D G set) for initial six month after which BHEL will provide general illumination. The contractor will arrange and install temporary general illumination system at their work spot during construction right from start of work. This system will include work area lighting, temporary pole, portable lighting arrangements etc. at his work spot and at his own cost.</p> <p><b>GENERAL:-</b> If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor will have to provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock &amp; key arrangement) at point of power supply along with calibration certificate from authorized / accredited agency for working out the power consumption. In case of recalibration required for any reason the necessary charges including replacement by calibrated meters is to be borne by the contractor. Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.</p>
8.2	The bidder shall have to provide <b>earth leakage circuit breaker</b> at each point wherever human operated electrical drives/ T&Ps are deployed.
8.3	The power supply will be from the available grid. BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of power supply/ variation in voltage level and no compensation for delay in work can be claimed by the contractor due to such non-supply on the grounds of idle labour, machinery or any other grounds. However contractor shall deploy adequate capacity of D G Set during initial six months for meeting his requirement of construction power( for commissioning and running of batching plant, concreting, fabrication erection, night work etc).
8.4A	Bidder will have to arrange sufficient illumination at their own work areas to the satisfaction of BHEL/BSEB.
8.4B	Contractor shall have to make arrangement at their own cost the electricity in their labour colony.
8.5	The contractor should ensure that the work in critical areas is not held up in the event of power breakdown. In the event of breakdown in the electric supply, if the progress of work is hampered, it will be the responsibility of the contractor to step up the progress of work after restoration of electric supply so that overall progress of work is not affected.
8.6	The contractor shall have to make arrangement at their own cost for illumination that will be required in the working area for execution of the work & safety of workmen.
<b>9.0</b>	<b>CONSUMABLE</b>
9.1	All consumables, like gas, electrodes, chemicals, lubricants etc. required for the scope of work, shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.
9.2	All consumables to be used for the job shall have to be approved by BHEL/BSEB prior to use.
9.3	In the event of failure of contractor to bring necessary and sufficient consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be paid by the contractor or deducted from the contractor's bills.
<b>10.0</b>	<b>TEST CERTIFICATES</b>
	Necessary test certificates of all materials supplied by contractor are to be produced to BHEL prior to use of those materials.
<b>11.0</b>	<b>IMTE</b>
	The contractor shall ensure deployment of reliable and calibrated instrument, measuring, and test Equipment (IMTE). The IMTE shall have test calibration certificate from authorized / Govt approved agencies. The contractor shall also keep provision of alternate engagement for such IMTE so that the work does not suffer when a particular IMTE is sent for calibration. Re-testing/ re-calibration shall also be arranged by the contractor at their own cost at regular interval during the period of use as

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	advised by BHEL.
<b>12.0</b>	<b>QUALITY CONTROL &amp; QUALITY ASSURANCE</b>
	Contractor's Engineers and supervisors shall be adequately qualified and also inclined to do a quality job. The quality assurance Engineer shall co-ordinate all aspects of quality control, inspection, implementation of quality assurance procedures laid down in Quality Plan and technical specification by BHEL. He shall fill up quality assurance log sheets / formats and submit to BHEL for joint inspection and acceptance. The contractor shall fill up, maintain & preserve the quality records in computerized media. BHEL's authorized representative shall be given free access at all time to such quality related records etc. for inspection, review etc.
<b>13.0</b>	<b>QUALITY ASSURANCE PROGRAMME</b>
13.1	The contractor shall arrange for suitable quality assurance programme to control all activities pertaining to the scope of work, as necessary. Such programs shall be outlined by the contractor and shall be finally accepted by BHEL .A quality assurance programme of the contractor shall generally cover the following
13.2	Organization structure and qualification data for key personnel of the contractor for the management and implementation of the proposed quality assurance programme.
13.3	The procedure for source inspection, incoming raw material inspection, verification of material purchased etc.
13.4	System for maintenance of records.
13.5	General requirements – quality assurance <b>All materials, components and equipments covered under the specification shall be procured, manufactured, erected, commissioned and tested, as applicable, at all stages as per comprehensive quality assurance programme. An indicative programme for inspection /test, to be carried out by the contractor, for some of the major items is given in the respective technical specification.</b>
13.6	<b>Field quality plan will detail out the quality practices and procedures etc to be followed by the contractor's site quality control organization, during various stages of site activities from receipt of material /equipment at site at their own cost.</b>
13.7	Casting and forgings used for construction shall be of tested quality. Details of results of chemical analysis, mechanical properties test result, as necessary, shall be furnished.
13.8	All welding shall be carried out as per procedure drawn and qualified in accordance with the requirements of ASME Section- 1X/BS4870 or other international equivalent standard acceptable to BHEL
13.9	All welders etc employed on any part of the contract at contractors' work or at site shall be qualified as per ASME Section – IX or BS 4871 or equivalent international standard approved by . Such qualification test shall be conducted in presence of BHEL.
13.10	All non-destructive examinations (NDT) shall be carried out in accordance with approved international standard .NDT operators shall be qualified as per SNT-TC-IA (of American society of non-destructive examination) Results of NDT shall be properly recorded and submitted for approval.
13.11	All the purchase specifications for the major bought out items list of which shall be drawn up by the contractor and finalized with BHEL shall be furnished to BHEL for comments and approval before placement of orders.
13.12	BHEL reserves the right to carry out quality audit and quality surveillance of the systems and procedures of contractor's quality management. Contractor shall provide all necessary assistance to enable BHEL to carry out such audit.
13.13	Quality audit/approval of the results of test and inspection will not prejudice the right of BHEL to reject an equipment service not giving the desired performance and shall not in no way limit the liabilities and responsibilities of the contractor in earning satisfactory performances of equipment/service as per specification.
13.14	Repair/rectification procedure to be adopted to make any job acceptable shall be subject to the approval of BHEL.
13.15	All the latest relevant IS codes as per technical specification should be available with the contractor at site with in 45 days from the date of placement of LOI.
<b>14.0</b>	<b>PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT</b>
	To meet the need of construction management at site, contractor shall provide the following services within quoted/ accepted rates.
	<b>PLANNING &amp; MONITORING</b>

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14.1.1	<p>The bidder shall prepare detail construction schedule (L-3) as per completion dates given in this document. This schedule must include all milestone and key activities for each subsystems/ components in the areas of engineering (wherever applicable), procurement, manufacture (wherever applicable), excavation/ concreting/construction/ erection. The network must conform to following overall project milestone schedule. However, further micro break-up of schedule based on major milestone schedule shall be drawn at site prior to start of work. Bidder should also ensure monitoring of these activities at least weekly basis to start with and on daily basis whenever required by BSEB/BHEL. The bidder has to adhere to the following project schedule. The dates shown below are for Unit-8 &amp; Unit-9 (with start date assumed as last week of december'2011),</p>																																		
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14.1.2	<p>The bidder shall also prepare progress report indicating progress on key activities, management summary for critical activities, list of actions requiring attention of BHEL. This schedule is to be preferably made in PRIMAVERA/MS PROJECTS, so that the same is compatible with BHEL's project management software.</p>																																		
14.1.3	<p>The bidder will have to install 3 nos PCs (multimedia PC work station Pentium-Duo, 1 GHZ or above, 120 GB HDD, 1GB RAM, 100 MBPS LAN card of HCL/ COMPAQ/ ZENITH or equivalent make with window XP (professional) O/S and required software like MS Office 2007 Professional, AutoCAD 2005, PageMaker (7.0 etc), ADOBE PDF CREATOR with one nos laser jet printer compatible for A3 size printing (ink/ cartridge for which to be supplied as and when required, for estimation of the bidder, the consumption may be assumed as 1 cartridge per 2 month), two nos laser jet printer compatible for A4 size printing (ink/ cartridge for which to be supplied as and when required, for estimation of the bidder, the consumption may be assumed as 1 cartridge per 3 month) with power backup at places, as per instruction of BHEL for exclusive use of BHEL. These computers/ printers shall remain contractor's property and they will be allowed to take out the same after completion of the site works. The contractor shall provide data / information etc in prescribed formats for periodical updating of the progress reports, material management reports, updating of network pertaining to the contractor's scope of work etc. The contractor shall also provide three nos computer operators and four numbers service staff for miscellaneous service for BHEL's use at</p>																																		

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	<p>site/ Kolkata for reconciliation, progress review &amp; day-to-day planning purpose, documentation etc. This facility to be provided from 1<sup>st</sup> month from LOI date till completion of site works or as decided by BHEL. If contractor fails to provide computer/ printer or personnel as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to deduct the amount as per following rates on prorated basis, from contractor's RA bill or any other dues.</p>
	@ Rs 12,000/- (twelve thousand)/ month for each computer operator.
	@ Rs 8,000/- (eight thousand)/ month for each computer with printer.
	@ Rs 6,000/- (eight thousand) / month for each service staff.
	In the event of the contract period getting extended beyond the stipulated time for reasons not attributable to the bidder, the bidder will be reimbursed at Rs 9230 per month for each computer operator, Rs 6153 per month for each computer with printer and Rs 4615 per month for each service staff, if the services of computer/ operator/ staff are being used by BHEL.
14.1.4	The contractor's site office must have facilities of communications like Fax, E-mail, and telephone with STD facility within a month from LOI.
14.2	<b>PROGRESS REPORTING</b>
14.2.1	The bidder shall submit daily, weekly and monthly progress reports for work force, materials reports, consumables (gases/electrodes) report and other reports as per pro-forma considered necessary by the BHEL. In case of any failure on contractor's part to comply with this, BHEL may at its discretion, consider to withhold part payment against their RA bills.
14.2.2	The progress report shall indicate the progress achieved against planned with reasons indicating delays, if any, and shall give the remedial actions which the contractor intends to take to make good the slippage or lost time, so that further works again proceed as per the original program and the slippages do not accumulate and effect the overall program.
14.2.3	The daily work force reports shall clearly indicate the work force deployed, category-wise specifying also the activities in which they are engaged.
14.2.4	Weekly progress review meetings will be held at site during which actual progress during the week vis-à-vis scheduled program shall be discussed or actions to be taken for achieving targets. For discussions, the contractor shall present program of subsequent week. The contractor shall constantly update/revise his work program to meet the overall requirement.
14.2.5	Periodic progress reviews on the entire activities of execution in respect of supply and works in scope of bidder will be held once in a month at Calcutta/site. These meetings will be attended by reasonably higher officials of the contractor and will be used as a forum for discussing all areas where progress needs to be speeded up. The contractor shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.
14.2.6	Average rate of fabrication per month shall not be less than 700T - 750T. During peak period, minimum fabrication should be 800 MT - 850 MT per month Average rate of erection per month shall not be less than 700T - 750T. During peak period, minimum erection should be 800 MT - 850 MT per month
14.2.7	During construction contractor shall take an average thirty colour digital photograph / slides per month (not less than seven per week) of the works during progress and fifty colour digital photograph/slides of completed facilities.
14.2.8	Successful bidder has to provide for electronic/ computerized storing and re-production/ printing/ plotting of various data, log sheets, protocols, measurements etc. These may be stored in CD (as per requirement) and handed over to BHEL as per requirement.
14.3	<b>SITE ORGANIZATION</b>
14.3.1	The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all time for smooth execution of the contract headed by a competent construction manager for site operations with sufficient level of authority to take site decisions. The vendor will submit organization chart (showing the name of SITE-IN-CHARGE) with individual bio-data indicating various levels of experts to be posted for supervision in the fields of supervision and execution, quality, material management, planning, safety, etc. The organization shall be reinforced from time to time, as required to make up slippage (if any) from the schedule without any commercial implication to BHEL. The organization chart is to be submitted within 10 days from the date of LOI.
14.3.2	Following (minimum) engineering manpower with power plant construction background to be deployed at site by the successful vendor for their day to day supervision etc..

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14.3.2.1	Qualified safety officers with assistants (exclusive for safety supervision for project jobs).	Officer – Two Nos.
14.3.2.2	Site supervising engineer and supervisors for leveling grading, Roads & drains job.	One no Enigineer One nos supervisor
14.3.2.3	Engineer & Supervisors for quality inspection (Civil + Strl).	Two nos Engineer Two supervisors
14.3.2.4	Site supervising engineer and supervisors for piling, ground improvement work & stone col work.	Three nos ENG Three supervisor
14.3.2.5	Site supervising engineer and supervisors for civil works in power block area.	Two nos Enigineers Three nos supervisors
14.3.2.6	Site supervising engineer and supervisors for Structural job(fabrication &erection).	Three nos Enigineers Three nos supervisors
14.3.2.7	Planning engineer (power plant erection background)	One
14.3.3	Engineer/ supervisor for other functions like store & purchase, material management, planning, fin, admn etc are to be provided as per site requirement and not considered above.	
14.3.4	In the event of non deputation of engineer/ supervisor/ draftsman by the bidder BHEL shall reserve the right to deduct Rs 45,000.00 per man-month for engineer and Rs 25,000.00 per man-month for the supervisor/ safety officer from the date of deputation as indicated as above from RA bills. Further induction of manpower regarding site supervisor & site engineer will be decided at site as per requirement. Further induction of manpower regarding site supervisor & site engineer will be decided at site as per requirement.	
14.3.5	BHEL reserves the right to reject or approve the list of personnel proposed by the contractor. The persons whose bio-data have been approved by BHEL will have to be posted at site and deviation in this regard will not be permitted unless specific & reasonable justification is made.	
14.3.6	In addition to above, a well experienced qualified engineer to be designated, as 'Project Co-coordinator', shall be deployed by the contractor. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc to contractor's own team during the complete execution period of contract.	
14.3.7	The contractor should also submit to BHEL for approval a list of T&Ps along with their fitness certificates. The tools & tackles shall not be removed from site without written permission of BHEL.	
14.3.9	The contractor should also submit network programs for the erection of various items. These networks shall show the BHEL hold points (CHP), which have to be cleared by BHEL, or their authorized representatives before further erection can take place. These programs for the erection would clearly identify responsibilities of the contractor and BHEL. It is the responsibility of the contractor to get the Networks approved by BHEL within four weeks of the date of finalization of award of work/ placement of LOI.	
14.4	<b>CONSTRUCTION MANAGEMENT</b>	
14.4.1	Based on the approved program the contractor shall submit a program of construction/ erection/ commissioning for the implementation. These programs would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detail monitoring. The three monthly rolling program with the first month's program being tentative based on the site condition would be prepared based on these programs. The contractor shall also be involved along with BHEL to tie up detailed resources mobilization plan over the period of the contract matching with the performance targets.	
14.4.2	The program would be jointly finalized by the site in-charge of the contractor with BHEL project coordinator as well as the site-planning representative. The erection program will also identify sequential events matching financial turnover.	
14.4.3	The contractor is liable to furnish all documentary evidences towards payment of Works Contract Tax as and when required by BHEL.	
14.5	<b>WORK &amp; SAFETY REGULATIONS</b>	
14.5.1	The contractor shall ensure the safety of all workmen, materials and equipment either belonging to him or to others working at site. He shall observe safety rules and codes applied by the BHEL at site without exception.	
14.5.2	Erection Passenger lift should have safety cage with multiple rope, i.e. with safety rope & limit switch.	
14.5.3	Safety nets with hand railings must be provided on all both inside & outside hanging platform of slip-form equipment & hanging platform from brickwork.	
14.5.4	Emergency vehicle must be provided & kept separately as stand-by.	

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14.5.5	Non-conformity of safety rules and safety appliances will be viewed seriously and BHEL has right to impose fines on the contractor on each incident/each non-conformity as per details given below:	
	Safety measure	Fine (Rs)
14.5.5.1	Not wearing safety helmet at site.	Rs 50/-
14.5.5.2	Not wearing safety shoes at site.	Rs 50/-
14.5.5.3	Not wearing safety belt while working at higher elevation	Rs 100/-
14.5.5.3	Not providing lifeline of safety belt	Rs 100/-
14.5.5.4	Not using grinding goggles while doing grinding operations	Rs 50/-
14.5.5.5	Not using 24V supply for lighting in confined spaces.	Rs 500/-
14.5.5.6	Improper earthing of welding & other electrical machines.	Rs 500/-
14.5.5.7	Electrical plug not used for hand machines	Rs 100/-
14.5.5.8	Not slinging properly	Rs 200/-
14.5.5.9	Using damaged slings	Rs 200/-
14.5.5.10	Using frayed / broken welding cables	Rs 200/-
14.5.5.11	Non removal of scarp from platforms	Rs 200/-
14.5.5.12	Lifting cylinders without cage	Rs 500/-
14.5.5.13	Gas cutting without taking proper precautions or not using sheet below	Rs 200/-
14.5.5.14	Not maintaining electrical winches properly	Rs 500/-
14.5.5.15	Shorting of fuse links by thick wire	Rs 500/-
14.5.5.16	Over speeding of vehicles within in site premise	Rs 200/-
14.5.5.17	Not having valid driving license for type of vehicle being driven	Rs 500/-
14.5.5.18	Not having valid registration for the vehicle	Rs 500/-
14.5.5.19	Not providing proper barricades/ caution boards	Rs 200/-
14.5.5.20	Not displaying SWL on the lifting equipment	Rs 200/-
14.5.5.21	Sub-contractor not attending safety meeting	Rs 1000/-
14.5.5.22	Improper ladder for climbing up	Rs 500/-
14.5.5.23	Improper scaffolding arrangement	Rs 500/-
14.5.5.24	Engaging child labour for construction work	Rs 1000/-
14.5.5.25	Using domestic LPG cylinder for gas cutting /welding operations	Rs 500/-
14.5.5.26	Not maintaining First Aid Box	Rs 500/-
14.5.6	Any other nonconformity noticed not listed above will also be fined. The decision of BHEL engineer is final on the above. The amount will be deducted from running bills of the contractor. The amount collected on the above will be recognized for giving award to the employee who could avoid accidents by following safety rules. Also, the amount will be spent for improving the safety at site.	
14.5.7	The contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislation and BHEL, as he may deem necessary.	
14.5.8	The contractor will notify well in advance to BHEL of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals, which may involve hazards. BHEL shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the contractor shall strictly adhere to and comply with such instructions. BHEL shall have the right at his sole discretion to inspect any such container or such construction plant/equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its use. BHEL shall entertain no claim due to such prohibition and BHEL shall not entertain any claim of the contractor towards additional safety provisions/conditions to be provided for/constructed as per the BHEL's instructions.	
14.5.9	Further, any such decision of the BHEL shall not, in any way, absolve the contractor of his responsibilities and in case, use of such a container or entry thereof into the site area is forbidden by the BHEL, the contractor shall use alternative methods with the approval of the BHEL without any cost implication to BHEL or extension of work schedule.	
14.5.10	Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosives, the Contractor shall be responsible for carrying-out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act, 1948, and Petroleum and Carbide of Calcium Manual published by the Chief Inspector of Explosives of	

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	India. All such storage shall have prior approval of the BHEL. In case, any approvals are necessary from the Chief Inspector (Explosives) or any statutory authorities, the Contractor shall be responsible for obtaining the same.
14.5.11	All equipment used in construction and erection by Contractor shall meet Indian/ International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipments shall be strictly operated and maintained by the Contractor in accordance with manufacturer's operation Manual and safety instructions and as per Guidelines/ rules of BHEL in this regard.
14.5.12	Periodical examinations and all tests for all lifting/ hoisting equipment & tackles shall be carried-out in accordance with relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated laws/ rules in force from time to time. A register of such examinations & tests shall be properly maintained by contractor and will be promptly produced as & when desired by BHEL or by the person authorized.
14.5.13	The contractor shall be fully responsible for the safe storage of his and his sub-contractor's radioactive sources in accordance with BARC/ DAE (Bhabha Atomic Research Center/ Department of Atomic Energy, Govt of India) rules and other applicable provisions. All precautionary measures stipulated by BARC/ DAE in connection with use, contractor would take storage and handling of such material.
14.5.14	The contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need, as may be directed by BHEL who will also have right to examine these safety equipments to determine their suitability, reliability, acceptability and adaptability.
14.5.15	Where explosives are to be used, the same shall be used under the direct control and supervision of an expert, experienced, qualified and competent person strictly in accordance with the Code of Practices/ Rules framed under Indian Explosives Act pertaining to handling, storage and use of explosives.
14.5.16	The contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection, the contractor only shall use good and standard quality of material.
14.5.17	The contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to BHEL or other contractors under any circumstances, whatsoever, unless expressly permitted in writing by BHEL to handle such fuses, wiring or electrical equipment.
14.5.18	Before the contractor connects any electrical appliances to any plug or socket belonging to the other contractor or BHEL, he shall fulfill following.
14.5.18.1	Satisfy BHEL that the appliance is in good working condition.
14.5.18.2	Inform BHEL of the maximum current rating, voltage and phases of the appliances.
14.5.18.3	Obtain permission of BHEL detailing the sockets to which the appliances may be connected.
14.5.19	The BHEL will not grant permission to connect until he is satisfied that:
14.5.19.1	The appliance is in good condition and is fitted with suitable plug;
14.5.19.2	The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.
14.5.20	No electric cable in use by contractor/ BHEL will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.
14.5.21	No repair work shall be carried out on any live equipment. BHEL must declare the equipment safe and a permit to work shall be issued by BHEL before the contractor carries out any repair work. While working on electric lines/equipments whether live or dead, suitable type and sufficient quantity of tools will have to be provided by contractor to electricians/ workmen/ officers.
14.5.22	The contractors shall employ necessary number of qualified, full time electricians/ electrical supervisors to maintain his temporary electrical installations.
14.5.23	The contractor shall employ trained safety officer to supervise day to day safety aspects of the equipments and workmen, who will co-ordinate with BHEL safety officer. In case of work being carried out through sub-contractors, sub-contractor's workmen/ employees will also be considered as the contractor's employees/ workmen for the above purpose.
14.5.24	The name and address of such safety officer of contractor will be promptly informed in writing to BHEL with a copy to safety officer-In charge before he starts work or immediately after any change of the incumbent is made during currency of contract.

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14.5.25	In case any accident occurs during the construction/ erection or other associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the contractor to promptly inform the same to BHEL in prescribed form and also to all the authorities envisaged under the applicable laws.
14.5.26	BHEL shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/ or property, and/ or equipments. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/ accident and he shall comply to remove shortcomings promptly.
14.5.27	The contractor shall not be entitled for any damages/ compensation for stoppage of work due to safety reasons above and the period of such stoppage of work will not be taken as an extension of time for completion of the facilities and will not be the ground for waiver of levy of penalty.
14.5.28	The contractor shall follow and comply with all safety rules of BHEL, relevant provisions of applicable laws pertaining to the safety of workmen, employees plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservation. In case of any inconformity between statutory requirement and Safety Rules of BHEL referred above, the later shall be binding on contractor unless the statutory provisions are more stringent.
14.5.29	In case BHEL is made to pay such compensation then the contractor is liable to reimburse BHEL such amount in addition to compensation indicated above.
14.9.30	These insurance covers have to be taken prior to start of his work at the subject project and he shall make available the Policy to BHEL site-in-charge for necessary verification before commencement of work. However, irrespective of such verification/ acceptance, the sole responsibility to maintain adequate insurance cover for his workmen, T&P, assets etc at all times during the period of contract shall lie with the contractor. Regarding the aforesaid insurance cover, the contractor shall directly deal with the Insurance Company for all matters regarding the insurance in his scope.
14.10	<b>HEALTH SAFETY &amp; ENVIRONMENT</b>
14.10.1	It is imperative on the part of the contractor to join and effectively contribute in joint measures such as tree plantation, environment protection, contributing towards social up-liftment, conversion of packing woods to school furniture, keeping good relation with local populace etc.
14.10.2	Round the clock experienced paramedical personnel with first aid facility & one ambulance at site to be arranged by the bidder at his own cost. No medical facility within / near the site shall be provided by BHEL. However, BHEL shall provide one room (without furniture) for use as first aid.
14.10.3	No staff quarter shall be provided by BHEL.
14.10.4	No borrow area for earth shall be arranged / provided by BHEL.
14.10.5	All individual site erection, temporary approaches required for movement of cranes, trailers, trucks, transit mixers, dumpers, etc shall be arranged by the contractor at his own cost.
14.10.6	The contractor shall solely be responsible for the safety, quality, & quantity of material after it is handed over and issued to contractor by the BHEL.
<b>15.0</b>	<b>TEST CERTIFICATE FOR T&amp;P</b> All T&P, lifting tackles and pulling devices to be deployed by the contractor must bear valid / latest test certificates for their suitability, and the documents shall be preserved at site.
16.00	<b>ISSUE OF T&amp;P</b> – No T&P to be issued by BHEL.
<b>17.0</b>	<b>DELETED</b>
<b>18.0</b>	<b>MATERIAL HANDLING (BHEL ISSUED MATERIAL)</b>
18.1	Cement, reinforcement, earthing MS Rod, structural steel (MS plates, ISMB, ANGLE, CHANNEL, Chequered plate, Stainless Steel Plate) will be issued free of cost by BHEL for use in the work covered in this contract.
18.2	Cement & steel will be issued to the contractor from BHEL/Customer's store within the plant premises, on weighment basis. Receipt from BHEL/Customer's stores, handling / transportation to work site, unloading, safeguarding of material, reconciliation of materials etc. will be under the scope of work within his quoted rate.
18.3	Open land (free from encumbrance) shall be provided by BHEL on free of cost basis. Contractor shall maintain one centralized fenced store cum bar bending yard (Area Approx. 70mx70m). Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. Batching plant area shall be provided within plant premises and contractor shall make use of the area for installation and operation of the Batching Plant at his own cost.

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	The bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent work. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.
18.4	The contractor shall construct waterproof cement store for initial period (capacity minimum 400 MT) for storing and stacking of cement, CGI/ asbestos roofing (slope) with brick masonry wall, PCC flooring. Materials required for the same shall be provided by contractor at his own cost. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per IS codes with proper illumination and locking arrangements.
18.5	The contractor shall in no case be entitled for any compensation or damages on account of any delay in supply or non-supply thereof for all or any such material.
18.6	Clotting of cement and excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, such clotting of and/or rusting of steel occur rendering the same unusable, then such quantity of cement /steel shall be recovered from the interim payment at the penal rate specified in the tender.
18.7	No material shall be issued to the contractor except as those indicated above i.e. cement and steel unless otherwise expressly provided for in the contract. Contractor will have to make his own arrangement at his own cost for procurement of any other material as required for the works and of such quality as acceptable to BHEL.
18.8	The contractor shall maintain proper store account for all the BHEL issued materials and shall give three copies of once in two months computerised reconciliation statement of such account to the BHEL.
18.9	deleted
18.10	The contractor shall solely be responsible for the safety & quality of material after it is handed over and issued to contractor by BHEL.
18.11	BHEL issued materials shall not under any circumstances taken out of the project site unless otherwise permitted by BHEL.
<b>19.0</b>	<b>ISSUE OF MATERIALS</b>
19.1	ISSUE OF CEMENT
19.1.1	Cement as received from the manufacturer/ stockiest will be issued free of cost to the contractor. The theoretical weight or each bag of cement for issued purposes will be considered as 50 kg, the contractor shall be accountable for the cement issued to him on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement.
19.1.2	The empty cement bags duly accounted for against issue shall be the property of the bidder and the same shall be disposed by the bidder as per statutory regulation prevailing in the project.
19.2	ISSUE OF STEEL
19.2.1	The steel shall be issued to the contractor free of cost on the following basis.
19.2.1.1	M S Structural steel (plates including cheqd plate, angle, channel, ISMB, stainless steel plate) materials – Weighment basis (unit – MT).
19.2.1.2	Reinforcement steel and earthing rod (MS round) – Weighment basis (unit – MT).
19.2.2	All the steel (structural steel, reinforcement, earthing & MS rod, stainless steel) issued by the BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS specifications. IS: 808-1964                      Beams, Channels and Angles IS: 1730-1961                     Plates, Reinforcements                Fe-500 confirming to IS: 1786. or grade-1 of IS:432 (part-I)
19.2.3	In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.
19.2.4	The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores no claims for extra payment because of issue of non-standard length will be entertained.
19.3	The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or

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	quantity after the materials are taken by the contractor from BHEL stores.	
19.4	The contractor shall submit to the engineer, a statement indicating estimated quantity of cement and steel required at least two months in advance. In addition, the contractor shall also furnish the estimated requirement of cement and steel during a month by the third week of the previous month indicating his requirement.	
19.5	Bidders to ensure that no lamination materials are taken over by them from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL	
19.6	Bidder to note that all fasteners like MS/HT/HSFG bolts/nuts, lock nuts, washers etc shall be supplied by the bidder as per applicable item of BOQ-cum Rate schedule.	
19.7	Bidder to note that cement and steel required for his enabling job like store/site office etc shall be arranged at his own cost. All TG staging material shall be arranged by contractor at his own cost. Bidder shall do the design for its structure just immediately after receipt of TG deck drawing and obtain approval from an institution of repute.	
19.8	For main civil, structural and architectural work, any reinforcement / structural item required shall be arrange by the contractor and payment will be released as per BOQ schedule rates.	
<b>20.0</b>	<b>RETURN OF MATERIALS</b>	
20.1	RETURN OF CEMENT	
20.1.1	Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ Engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores/ place as identified within the project area by Engineer/ BHEL will not be entitled to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weighment basis.	
20.2	RETURN OF STEEL INCLUDING SCRAP	
20.2.1	All surplus steel and all wastage materials will be taken back on weighment basis.	
21.2.2	Surplus, unused and un-tampered steel shall be sorted section-wise and returned separately for a place directed by BHEL/Engineer within the project area; Return of such materials will not be entitled to any handling and incidental charges.	
20.2.3	All wastage/ scrap (including wastage, unusable scrap) shall be returned to the stores on weighment basis and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any additional cost due handling and transportation and incidental charge.	
20.2.4	Scrap for reinforcement steel and structural steel shall be returned separately	
<b>21.0</b>	<b>CEMENT AND STEEL CONSUMPTION AND WASTAGE</b>	
21.1	CEMENT CONSUMPTION	
21.1.1	The theoretical consumption of cement shall be based on the following.	
21.1.1.1	For design mix concrete as per approved design mix.	
21.1.1.2	For nominal mix concrete work, as per minimum cement as specified or as approved by Engineer-in-charge.	
21.1.2	For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the “Statement of Cement Consumption” attached to Delhi schedule of Rates of CPWD-DSR-2002 unless otherwise specified in the specifications or the drawing of contract of contract or mutually agreed by Engineer-in-charge and contractor.	
21.1.3	Actual consumption = Issue – Surplus/ unused quantity of cement returned in good condition by contractor to store. (No sweep cement will be taken back by BHEL).	
21.2	CEMENT WASTAGE	
21.2.1	Allowable wastage – One and half percent (+1.5%) of theoretical consumption of cement unless specified otherwise in the technical specification.	
21.2.2	For any material issued by BHEL to the contractor free of cost, and which is not accounted for by the contractor to BHEL, then recovery for such material shall be effected at penal rates.	
21.2.3	Sl no	Basis of issue & penal recovery
	C-1	Theoretical consumption (without considering any wastage or loss).
	C-2	Actual consumption being Limited to plus one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.

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	C-3	Actual consumption beyond one and half percent (+1.5%) of above (C-1).	Penal rate
21.3	<b>REINFORCEMENT STEEL &amp; EARTHING MS ROUND CONSUMPTION</b>		
21.3.1	The theoretical consumption of various diameter of reinforcement and earthing MS round shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
21.3.2	Actual consumption = Issue – Surplus.		
21.3.3	Surplus = Un-tampered and unused quantity of steel returned by the contractor to BHEL store along-with relevant documents.		
21.3.4	Wastage = Actual consumption – Theoretical consumption.		
21.4	<b>REINFORCEMENT STEEL &amp; EARTHING MS ROUND WASTAGE</b>		
21.4.1	Allowable wastage : (+4%) of the theoretical consumption shall be considered as allowable wastage.		
21.4.2	Wastage and scrap shall be as per actual weighment basis.		
21.4.3	Sl no	Reinforcement steel & earthing rod M S round	Basis of issue & penal recovery
	R-1	Theoretical consumption (without considering wastage and scrap or loss)	Free
	R-2	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (R-1) towards allowable wastage.	Free
	R-3	Wastage beyond four percent (+4%) of the theoretical consumption above (R-1).	Penal rate
21.5	<b>STRUCTURAL STEEL MATERIALS CONSUMPTION</b>		
21.5.1	The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard as mentioned in relevant clause. No extra shall be payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
21.5.2	Actual consumption = Issue – Surplus.		
21.5.3	Surplus = Untempered, unused, uncut quantity of steel returned by the contractor to BHEL store.		
21.5.4	Wastage = Actual consumption – Theoretical consumption.		
21.6	<b>STRUCTURAL STEEL WASTAGE</b>		
21.6.1	Allowable wastage – 4 % (four percent) of the theoretical consumption shall be considered. Wastage is further classified as cut pieces and scrap measured as per actual weightment basis. Invisible wastage (loss of materials due to gas cutting, straightening of edges etc) shall be limited to 0.5 % (zero point five percent) of theoretical consumption and shall be considered for reconciliation purposes only. But this invisible wastage shall be considered to be included in allowable wastage (i.e. four percent).		
21.6.2	Sl no	Structural steel materials	Basis of issue & penal recovery
	S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification & drg.	Free
	S-2	Wastage limited to plus four percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage.	Free
	S-3	Wastage beyond four percent (4%) of the aforesaid theoretical consumption (S-1).	Penal rate
21.7	All wastage reinforcement, MS round (for earthing), structural steel shall be returned to BHEL.		
22.0	<b>RECONCILIATION OF BHEL ISSUED MATERIALS</b>		
22.1	The contractor shall submit a reconciliation statement of cement and steel issued to him with each RA bill.		
22.2	At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available with contractor's custody at site.		
22.3	At the time of submission of bills by the contractor, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.		

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22.4	The approved drawings/ bar bending schedules are to be considered for the purpose of reconciliation of materials.	
<b>23.0</b>	<b>DELETED</b>	
<b>24.0</b>	<b>RECOVERY OF MATERIAL</b>	
24.1	If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA bill at the penal rate stipulated below.	
24.2	<b>PENAL RATE OF MATERIALS</b>	
	Item	Penal rate (Rs)
24.2.1	Cement (OPC/ PPC/PSC).	6,500/- per MT.
24.2.2	Reinforcement steel and earthing rod etc.	58,000/- per MT.
24.2.3	Stainless Steel Plate / Liner	6,00,000/- per MT
	Structural steel and hand railing materials.	65,000/- per MT.
<b>25.0</b>	<b>CONSTRUCTION OF TEMPORARY OFFICE, STORES ETC</b>	
25.1	The contractor shall arrange at his own cost cleaning and grass removing of area allotted, construction of his temporary office/stores, cement godown, fabrication yards etc. and also the watch and ward of all the above. Materials required for the same shall be provided by contractor at his own cost.	
25.2	BHEL contemplates to provide fabrication yard more that one places within plant premises. However; during execution, based on actual site conditions, requirement and layout and approaches, the above may change suitably.	
<b>26.0</b>	<b>TOOLS &amp; PLANTS (TO BE PROVIDED BY CONTRACTOR)</b>	
26.1	Tentative list of T&P to be deployed by contractor for successful completion of work is detailed below. This supersedes corresponding Annexure of Volume-1E	
26.2	It may be noted that the list is not exhaustive and is only for general guidance. The contractor is required to provide all necessary T&P (other than those specified to be provided by BHEL) measuring (calibrated) instruments & handing equipments for timely completion of total work as per contract. In case of project requirement, some activities may have to pre-pone. In such cases the contractor may have to deploy additional T&P. Quoted rate shall be inclusive of such requirements. However, contractor shall submit deployment plan of all T&P along with tender bid.	
26.3	In the event of any failure of the part of the contractor and as a result progress of work suffered, BHEL may at his discretion also terminate the contract on this ground and take out any or whole amount of the contract from the scope of the contractor. In the event of failure of contractor to deploy necessary and sufficient T&P/ IMTEs. BHEL will be at liberty to arrange the same at the risk & cost of contractor including transportation cost of same from any of BHEL site/ other agency & charges as applicable shall be deducted from contractor's RA bill. Decision of BHEL in this regard will be final & binding on contractor.	
26.4	Following Major T&Ps to be arranged by contractor within the time as indicated against each T&P.	
	Major T&P items	Mobilisation time (from LOI date)
26.4.1	One no. crawler cranes 40/45 T capacity or gantry crane of min 45T capacity.	1 <sup>st</sup> Within 60 days
26.4.2	One 75 T crawler crane(for fabrication) or gantry crane of min 45T capacity	Within 75 days
26.4.3	2 Nos. hydraulic excavator / Poclain	1 <sup>st</sup> Within 15 days, 2 <sup>nd</sup> within 30 days
26.4.4	Two Nos. 20/25 T capacity crawler crane	1 <sup>st</sup> Within 45 days, 2 <sup>nd</sup> within 90 days.
26.4.5	6 nos. hydra (10/ 12 T cap)	1 <sup>st</sup> & 2 <sup>nd</sup> within 30 days. 3 <sup>rd</sup> within 70 days. 4 <sup>th</sup> & 5 <sup>th</sup> & 6 <sup>th</sup> within 100 days
26.4.6	Four Nos. All cut / Radial drill machine	Within 100 days.
26.4.7	4 nos. submerged arch welding machine	Within 60 to 90 days.
26.4.8	8 nos. MIG machine	Within 60 to 100 days.
26.4.9	40 nos. welding rectifier	Within 60 to 120 days.
26.4.10	40 nos. welding rectifier	Within 150 days.
26.4.11	1 no. trailor – 15T	Within 100 days.

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26.4.12	4 no. power driven HSFG bolt tightening m/c	Within 140 to 160 days.
26.4.13	1 no. portable automatic concrete batching plant with printing facility (Output 15 cum/ hr)	<b>To be commissioned Within 45 days.</b>
26.4.14	1 no. automatic concrete batching plant with printing facility (30 Cum/Hr) – to be commissioned at site.	<b>Within 60 days.</b>
26.4.15	4 nos. transit mixer (4.5/5/6 M3 capacity)	1 <sup>st</sup> within 40 days. Balance within 75 days.
26.4.16	3 nos. concrete pump (20 cum/ hr min capacity & lift 70M)	Within 60 to 75 days.
26.4.17	<b>One mobile concrete boom placer atleast 41mt height lifting capacity( required from start of piling work).</b>	Within 30 days.
26.4.18	2 nos. self priming dewatering pump 5 HP (diesel/ electric)	Within 20 days.
26.4.19	Two nos. 10 HP submersible mono-block electric pump (KOS-1040+ of Kirloskar or equivalent),	Within 60 days.
26.4.20	2 nos. self priming dewatering pump 2 HP (diesel/ electric)	Within 30 days.
26.4.21	One no. 5 HP sludge/sump/slurry electric pump.	Within 30 days.
26.4.22	2 nos. curing pump – 1.5 /2 HP (pump for curing at heights)	Within 60 days.
26.4.23	1 no. dozer.	Within 25 days.
26.4.24	<b>One vibro-piling rig for sand piling work.</b>	<b>Within 30 days</b>
26.4.25	<b>Six nos driven piling rig with all accessories (3 nos Metco rig preferred)</b>	1 <sup>st</sup> & 2 <sup>nd</sup> within 20 days (commissioning). Balance within 60 days.
26.4.26	Ply shuttering board (4500 sqm) including propping with steel tubular sections/ ACROW pipes	Within 60 days.
26.4.27	Ply shuttering board (4500 sqm) including propping with steel tubular sections/ ACROW pipes	Within 120 days.
26.4.28	8 nos. dumper	3 nos. Within 20 days. Balance within 30 days
26.4.29	2 nos. reinforcement bending machine	Within 30 days.
26.4.30	2 nos. reinforcement cutting machine	Within 30 days.
26.4.31	40,000 RM MS scaffolding pipe/cup-lock system	As per site requirement
26.4.32	04 nos. power driven earth rammer	Within 60 days.
26.4.33	1 no. vibromax (earth compacter)	Within 45 days.
26.4.34	1 no. compression testing machine (200 T cap)	Within 45 days.
26.4.35	Civil laboratory equipments as per list attached in ANNEX `A` with temporary building (20 M x 8 M).	Within 55 days.
26.4.36	4 nos. electric winch with building hoist	Within 220 days.
26.4.37	Power winch – 3T - 4 nos for structural erection	Within 150 days
26.4.38	Power winch – 5T - 2 nos for structural erection	Within 150 days
26.4.39	1 no total station with adequate arrangement for operators.	Within 15 days.
26.4.40	1 no theodolite 1 second accuracy	Within 15 days.
26.4.41	2 nos auto level & staff	Within 15 days.
26.4.42	One 150 T capacity Crawler crane structural erection.	Within 190 days.
26.4.43	125 nos concrete cube moulds	Within 15 days.
26.4.44	DELETED	
26.4.45	Adequate no. of small trucks 2T/5T for movement within site	As per requirement.
26.4.46	One nos drinking water tank – 5000 lit.	Within 30 days.
26.4.47	1 nos truck mounted water tank (minimum 5000 lit) capacity with sprinkler arrangement.	Within 30 days.
26.4.48	1 no ultra-sonography testing machine for structural work.	Within 75 days.
26.4.49	1 no radiography source.	Within 100 days.
26.4.50	TG scaffolding materials / structural steel (approx 90 T).	Within 160 days.
26.4.51	One no. 75 T capacity crawler crane for erection	During erection of A row cols.
26.4.52	One no. Crawler crane 250T or above with lattice boom & jib for mill building / bunker structure erection.	As per requirement
26.4.53	Portable fire extinguishers as below	Within 90 days

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	Soda acid – 20 sets. Dry chemical powder – 20 sets CO2 – 15 sets. Water & sand bucket (4 buckets in one stand) – 10 sets. Fire hose with nozzle (50 M length) – 12 sets.	
26.4.54	1 no concrete cutting power tools (DD2E of HILTI/ BOSCH make).	As per site requirement
26.4.55	1 no concrete coring machine for drilling in concrete upto 150 mm dia alongwith diamond bits.	As per site requirement
26.5	Major T&P shown in the above mentioned list are minimum requirement. <b>Mobilisation period shown above for T&amp;Ps have to be adhered and no change will be permitted without written approval of BSEB/BHEL.</b> Further requirement will be reviewed time to time at site and vendors will provide additional T&P/ equipments require to ensure completion of entire work within construction schedule time without any financial implication to BHEL/BSEB. However payment for deployment of 150T, 250T capacity cranes and water tanker with sprinkler arrangement only shall be made as per BOQ schedule rates. All other T&Ps shall be provided by the contractor without any extra cost to BSEB/BHEL. <b>Vendor will give advance intimation &amp; certification regarding capacity etc prior to dispatch of heavy equipments.</b>	
26.6	All T&P and all IMTEs, which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition.	
<b>27.0</b>	<b>CIVIL LABORATORY AT SITE</b>	
27.1.0	Contractor shall establish and maintain civil laboratory at site with equipments as listed attached in <b>ANNEX `A`</b>	
27.1.1	Compressive strength of cement, concrete cubes, bricks etc.	
27.1.2	Water absorption test of bricks.	
27.1.3	Earth compaction test (proctor density/ dry density and optimum moisture content, etc).	
27.1.4	Conducting of test for setting time and compressive strength of cement.	
27.1.5	Sieve analysis of fine aggregates and coarse aggregates.	
27.1.6	Bulking test of fine aggregates.	
27.1.7	Sieve analysis, moisture content, specific gravity and crushing strength of course aggregates.	
27.1.8	Rapid moisture meter	
27.1.9	Other than above mentioned test, any testing required to be carried out at site as per Quality Plan and technical specification have to be arranged by contractor for all the works at his own cost.	
27.2.0	The scope shall also include setting up by the bidder a testing laboratory (one AC lab size 4.5mtr x 6mtr and 1 non AC lab 4.5 mtr x 4.5 mtr.) in the field to carry out all relevant tests. Detail of laboratory equipments as per Annexure-A is to be arranged by the contractor within quoted rate. For conducting day to day one no. chemist to be deployed as necessary.	
<b>28.0</b>	<b>CONSTRUCTION SCHEDULE</b>	
28.1	Entire work shall be carried out in accordance with the construction schedule within the stipulated completion period. Within 30 days of LOI, the contractor shall discuss with BHEL site engineer & furnish the (L-3) construction schedule based on milestones as per clause 14.1.1 for approval.	
28.2	Contractor will establish mix design within 40 days from the date of LOI.	
28.3	Mix design for all concreting may be carried out either at site or from a reputed institute; contractor has to ensure adding of admixture and minimizing of cement content in line with IS 456.	
<b>29.0</b>	<b>COMPLETION PERIOD</b>	
29.1	The entire work under this scope shall be successfully completed in all respect within 27 (twenty-seven) months <b>for PKG-A &amp; 27 (twenty-seven) months for PKG-B from the date of LOI of the respective packages.</b>	
29.2	Contractor shall mobilise resources to start the work of respective packages, ie PKG-A & PKG-B within 15 days from date of respective LOI's.	
<b>30.0</b>	<b>LIQUIDATED DAMAGE</b>	
	If the contractor fails to complete the subject job as per aforesaid completion period (for Package-A & Package-B separately), BHEL shall have the right to recover as liquidated damages (LD) a sum equivalent to 0.25 % of the contract price (for Package-A & Package-B separately), including taxes, duties of each unit for delay of each week or part thereof. The liability for delay shall not in any case exceed 5% (five percent) of the contract price (for Package-A & Package-B separately), including taxes, duties of each package (i.e. Pkg-A or Pkg-B).	

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<b>31.0</b>	<b>CERTIFICATE TOWARDS COMPLETION</b>
	The work under the scope of the contractor shall be deemed to have been completed in all respects only when so certified by BHEL. The decision of BHEL in this regard shall be final and binding on the contractor.
<b>32.0</b>	<b>GUARANTEE</b>
32.1	Even though the work will be carried out under supervision of BHEL, the contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.
32.2	The contractor shall guarantee the work executed under the scope of the contract for a period of 12 (twelve) months from the date of start of guarantee period as certified by the Engineer (ie on completion of total work under scope and/ or taking over by BHEL/BSEB) and shall rectify free of cost all defects due to faulty supply or work done. In case the contractor fails to repair/ replace the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs/ replace such defective works at contractor's risk and cost without prejudice to any other rights and recover the same from security deposit/ other dues.
<b>33.0</b>	<b>EXTENSION OF TIME FOR COMPLETION</b>
33.1	If the completion of work as detailed in the scope of work gets delayed beyond the contract/ completion period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the contract.
33.2	Based on the reviews jointly signed by the contractor and BHEL and acceptance of the same by BSEB, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.
33.3	However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/ LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.
33.4	A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done.
33.5	During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program.
33.6	At the end of total work completion as certified by BHEL engineer & acceptance of the same by BSEB, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL/BSEB, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/ levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.
<b>34.0</b>	<b>INTEREST BEARING RECOVERABLE ADVANCE (IBRA)</b>
	Not applicable for this tender.
<b>35.0</b>	<b>OVER RUN CHARGES</b>
	Not applicable for this tender.
<b>36.0</b>	<b>REVISION ON ACCEPTED CONTRACT RATE</b>
	Not applicable for this tender.
<b>37.0</b>	<b>PRICE VARIATION CLAUSE</b>
37.1	PVC shall be applicable for Sch-2(Service Part) of the BOQ/Rate Schedule/VOLUME-IIIA as per relevant clause of GCC.
37.2	PVC shall not be applicable for Sch-3(Supply Part) of the BOQ/Rate Schedule/VOLUME-IIIA.
<b>38.0</b>	<b>SECURITY DEPOSIT &amp; PERFORMANCE BOND</b>
38.1	Security deposit shall be as per relevant clause of GCC.
38.2	Performance bond is not applicable for this tender.
<b>39.0</b>	<b>CONTRACT PRICE</b>
39.1	The bidder shall quote their rates strictly in accordance with prescribed rate schedule of Volume-III.

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39.2	<p>The quantities of the various items mentioned in the BOQ cum rate schedules of items of Volume-III are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of the work executed under any part of the this contract including extra items, if any, but excluding any price variation, remains within +/- 30 % (plus/minus thirty percent) of the awarded price as per LOI / WO.</p>
<b>40.0</b>	<b>TAXES AND DUTIES</b>
40.1	<p>TDS under Income Tax, V.A.T etc, if any, shall be deducted at prevailing rates on Gross Invoice Value from the Running Bills unless Exemption Certificate from the Appropriate Authority/ Authorities is furnished .</p>
40.2	<p>All taxes ( except Service Tax including Educational Cess and other Cess , if any ), Works Contract Tax under BIHAR V.A.T ACT, charges royalties, duties, Octroi , any State or Central Levy and other Taxes for materials obtained for the work and for the Execution of the Contract shall be borne by the Contractor and shall not be payable extra. Any Increase of the same at any stage during execution of the Contract shall have to be borne by the Contractor. Quoted price of the bidder shall be inclusive of all such requirements after taking the Input Credit , if any, as per provisions of the State V.A.T ACT. The Contractor is responsible to furnish all documentary evidences towards payment of Works Contract Tax as and when required by BHEL. Submission of Tax Invoice is a must after Grossing up the Bills as the price is inclusive of VAT/WORKS CONTRACT.</p>
40.3	<p>The Contractor has to make his own arrangement at his cost for completing the formalities, if required, with State V.A.T.Act Authorities, for bringing their materials, plants and machinery at Site for the execution of the Works under this Contract, Road Permit / Way Bill, if required, shall be arranged by the Contractor and BHEL-P.S.E.R will not supply any Road Permit/Way Bill for this purpose. The Contractor must be a Registered Dealer with the State VAT Act, if not Registered yet and a copy of the said Registration Certificate along with TIN Number must be provided to Site R.A.O</p> <p>The Vendor must furnish Tax Clearance Certificate from prescribed authority as per Sec.42 of The Bihar Value Added Tax Act,2005 before accepting the LOI / W.O. from BHEL.</p> <p>Advance Recovery of Tax from Works Contractors : BHEL will deduct applicable WCT TDS as per Sec 41 The Bihar Value Added Tax Act,2005</p>
40.4	<p>Service Tax: Finance Act, 2007 introduced a new sub-clause (zzzza) to Section 65 (105) which provided for levying Service Tax on execution of Works Contract with effect from 1.6.07.</p>
40.5	<p>Notification No. 32/2007-Service Tax provides an option (of composition) to the person liable to pay service tax in relation to works contract service to pay an amount equal to 4.12 % of the gross amount charged for the Works contract instead of normal rate provided in the Sec. 66 of the Act. However, <u>this option of paying service tax @4.12 % ( at present) on gross value can be exercised prior to payment of service tax in respect of said Works contract</u> and the option so exercised shall be applicable for the entire works contract and shall not be withdrawn until the completion of said works contract.</p> <p>As such, Service Tax as legally leviable &amp; payable by the Contractor under the above provisions of applicable law/Act , shall be paid by BHEL-P.S.E.R on Contractor's Gross Bill.</p> <p>The Contractor shall furnish proof of Service Tax registration with Central Excise Division covering the Services as well as exercising the aforesaid option i.e. the Composition Scheme under Notification 32/2007 under this Contract.</p> <p>Registration should also bear endorsement for the premises from where the billing shall be done by the Contractor on B.H.E.L-P.S.E.R for this Project.</p> <p>B.H.E.L-P.S.E.R will not be held to be responsible for non-compliance of various Service Tax Rules, being framed from time to time</p> <p>Contractor is allowed to include the value of free issue of materials , if any , mainly Steel ,</p>

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	Cement & other materials , supplied under Supply Contract based on monthly Consumption basis to enable them to comply with Notification 23/2009 –S.T for arriving at Gross Amount charged .
40.6	<ul style="list-style-type: none"> <li>➤ Point of Taxation Rule,2011 has come into operation from 01-04-2011. As per the rule Invoice must be generated within 14 days from the date of completion of service. In such case, the date of invoice will be the relevant date. However, if the invoice is not generated within 14 days as stated above, the date of completion of service shall be the relevant date.</li> <li>➤ <b>Vendors must take adequate care and cautions w.r.t “Point of Taxation Rule,2011”</b> as otherwise both the Vendors ( for non-compliance ) and BHEL ( unable to take Credit on Input Services, resulting in extra fund flow in that particular month ) will suffer</li> </ul>
40.7	New tax & duties, if imposed subsequently by statutory authority (after latest due date of bid submission) during contract period (including extension, if the same is not attributable to bidder), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, bidder shall obtain prior approval from BHEL before depositing new taxes & duties
<b>41.0</b>	<b>INTERIM PAYMENTS</b>
41.1	For all items of work as per Volume-III, Price Schedule, interim payment shall be limited to 95% of the gross value of interim bill on item rate basis which will be prepared and submitted by the contractor on the basis of measurement sheet duly checked and signed by BHEL and BSEB Engineers. All admissible recoveries/adjustments etc. shall be made from the interim payable amount. The balance 5% shall be payable along with final bill.
41.2	All admissible recovered/ adjustments etc. shall be made from the interim payable amount.
41.3	Out of this 95 %, 1.5 % of gross bill amount shall be paid in the following manner on certification by BHEL engineer after compliance of each of following activity in each month. In case of non-fulfilment of respective activity by vendor in each month, no payment shall be made by BHEL against corresponding activity and no claim of bidder at a later date, whatsoever, in this regard shall be entertained by BHEL.
41.3.1	0.7 % shall be paid on compliance of house keeping of vendor’s working area and store/ office areas.
41.3.2	0.3 % shall be paid on compliance of general illumination of vendor’s working area and stores, office area.
41.3.3	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.
41.3.4	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.
41.4	Contractor’s RA bill, complete & correct in all respects, certified by BHEL engineer, shall be paid in the following manner.
41.5	60 % (sixty percent) of payable amount of RA bill shall be made within 15 days of date receipt of bill certified by the BHEL engineer.
41.6	Balance payment within 30 days of receipt of bill.
41.3	Fifty percent of the Mobilisation & Demobilisation Charge of hired crane will be payable against Mobilisation and balance fifty percent is payable against Demobilisation as per BHEL Site Engineer’s certification.
41.4	BHEL site at its discretion may further split up the above percentages of break up and effect payment to suit the site condition, cash flow requirement, according to the progress of work. BHEL reserve the right to release payment through electronic mode, for which bidder shall comply with requisite formalities
41.5	Such payment as above shall be effected only on certification by BHEL against completion of each stage.
41.6	No bills including RA bills will be paid to individual consortium partners in case of consortium arrangement.
<b>42.0</b>	<b>METHOD OF MEASUREMENT</b>
	IS 1200 in conjunction of IS code 3385 shall be adopted. In case the item of measurement is not available in the IS 1200, the standard procedure adopted in CPWD shall be adopted. In case the same is also not available in CPWD, the measurement of the work done will be based on the mutual agreement between BHEL and contractor. In all the above cases, the interpretation of BHEL will be

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	final and binding to the contractor.
<b>43.0</b>	<b>EXTRA/ ADDITIONAL ITEMS OF WORK</b>
	It shall be as per GCC
<b>44.0</b>	<b>DESIGN OFFICE AND FABRICATION DRAWING</b>
44.1	Based on design drawings of structures, to be issued to the contractor from time to time by BHEL, contractor will prepare & <b>submit within 15 days of receipt of structural Engg drawing</b> , the detail fabrication/ shop drawing including tabulated form of bill of materials (BOM), joint calculations, for comments/ approval of BHEL at the office of BHEL/ PEM, Noida. BHEL reserves the right to assess the capability of the agency to be deployed by contractor for preparation of such fabrication drawing, and prior approval from BHEL Engineering office at Noida, is required for appointment of such agency.
44.2	Since time is the essence of the contract, the contractor must indicate the location of their design office where from such detailed activities will be made operative. It is preferred that the contractor have establishment / liason office at Delhi /Noida with a co-ordinator for better co-ordination with BHEL-PEM.
44.3	Contractor shall submit progress report pertaining to fabrication drawing, by 7 <sup>th</sup> of each month, drawing-wise, section-wise cumulative Bill of Materials for which Engineering drawing has been issued to them and status of fabrication drawing.
<b>45.0</b>	<b>FABRICATION / GALVANISING</b>
45.1	All the fabrication of structural steel items (except nuts/bolts) shall be done in fabrication yard inside project premises. Bidders to note that all fasteners like MS/HT/HSFG bolts, nuts, lock nuts, washers etc. shall be supplied by bidder as per technical specification/ drawings and BOQ items.
45.2	Bidder, at his own cost, shall supply electrodes required for fabrication, erection of structural steel as per specification and approval of BHEL.
45.3	However, in case of exigency as considered fit by BHEL, BHEL may permit the contractor to get some specific portion of fabrication / Galvanizing work done at qualified shop (s) out side the project premises. For steel to be issued to the contractor for such purpose, 50% of the value of such steel as worked out as per BHEL's procurement rates shall be furnished by the contractor in the form of BG. Such BG shall be returned depending on the receipt of fabricated / Galvanized steel back to site.
<b>46.0</b>	<b>OTHER TERMS</b>
46.1	While bidder's scope include deplyment of all resources, like T&P, materials, consumables, manpower including supervision etc for proper completion of the subject job and no sub-contracting for execution of the job is allowed by BHEL, depending on project's requirement and on prior acceptance of BHEL, bidder may associate agencies for deployment of skilled/ unskileld manpower only for site execution. Bidder should arrange all resources, like T&P, materials, consumables, supervision etc directly for the subject job.
46.2	All other term & conditions of this specification, not mentioned above shall be governed by the pertinent provisions of GCC.

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**ANNEXURE-A  
LIST OF EQUIPMENTS FOR CIVIL SITE LABORATORY**

<b>CONCRETE TESTING EQUIPMENT</b>				
SL NO.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	IS REF.
1	Initial & final setting time, Consistency of cement	Vicat Apparatus with desk pot	Standard	IS 5513
2	Shrinkage of cement, Auto Clave Test	Le Chatelier's apparatus Auto Clave Equipment	Standard	IS 5514
3	Abrasion value test	Los Angles Abrasion testing machine	Standard	IS 2386
4	Aggregate Impact value test	Aggregate Impact value testing machine with blow counter	Standard	IS 9377
5	Aggregate crushing value test	Crushing value apparatus	Standard	IS 2386
6	Flakiness index	Thickness gauge for measuring flakiness index	Standard	IS 2386
7	Elongation Index	Elongation guage	Standard	IS 2386
8	Bulk density, voids and bulking apparatus	Measuring cylinders	3, 5,10 & 15 liters cylinders	
9	Concrete Compressive test	Digital Compressive Testing Machine with 2000 KN capacity.	2000KN capacity	IS 2505
10	Cement motor cube casting	Mortor Cube mould	70.6 x 70.6 x 70.6 mm, minimum 06 sets desired.	IS 10086
11	Concrete Cube casting	Concrete Cube Mould	150x150x150mm, minimum 20 sets desired considering TG Raft major concreting activity.	IS 10086
12	Workability of concrete	Slump cone	Standard, atleast 04 nos	IS 456
13	Specific gravity of aggregates	Pycnometer	Standard, atleast 02 nos	IS 383

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14	Cement mortar cube vibrating	Motorised vibration machine for cement testing	Standard	IS 4031
15	Course aggregate Sieve analysis (Concrete & Road Works)	Sieve set	450mm dia GI Frames Size: 125 mm, 90 mm, 75 mm, 63 mm, 53 mm, 40 mm, 20 mm, 16 mm, 12.5 mm, 10 mm, 4.75 mm, Pan and cover	IS 383
16	Fine aggregate sieve analysis	Sieve set	200 mm dia Brass sieves; Size 4.75 mm, 2.36 mm, 1.18 mm 600 micron, 300 micron, 150 micron, 75 micron, 75 micron, Pan and cover	IS 383
17	Sieve Shaker	Motorised Sieve shaker	Mfg. Catalogue	
18	Silt content check	Sand silt content beaker	Standard	
19	Ultrasonic pulse velocity test	UPV apparatus for concrete	Standard	

<b>Soil Testing Equipment (Levelling &amp; Grading)</b>				
1	Liquid limit test	Liquid limit apparatus	Standard	IS 2720
2	Core Cutter test	core cutter apparatus	Rammer, 6 nos of std core cutter mould, dolly	IS 2720
3	Proctor density test	Std proctor Compaction apparatus	Standard	IS 2720
4	Moisture Content	Rapid moisture meter	Standard, atleast 04 nos	IS 2720

<b>Process Control Accessories</b>				
1	Hot air oven	Temperature range 50° C to 300° C	600x600x600mm (min.size)	
2	Electronic balance	3 nos	600gx0.01g, 10g and 50 kg	
3	Physical balance	5 kg capacity	Weights upto 5 kg	
4	Thermometer	Temperature range 0° C to 150° C	Digital	
5	Poker Thermometer (Concrete Road)	Temperature range 0° C to 50° C & 150° C	02 nos each required	
6	Measuring jars	2 nos set of each size	100ml, 200ml, 500ml & 1000 ml	
7	Gauging trowlers	4 nos	100mm & 200 mm with wooden handle	
8	Sputula	2 nos each size	100mm & 200 mm with long blade wooden handle	
9	Stainless steel scoop	2 nos each	2 kg and 5 kg	
10	Vernier calipers	2 nos each	12" and 6" Sizes	

VOLUME-IF-CML	TECHNICAL CONDITIONS OF CONTRACT, SCOPE ETC	25 of 25
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11	Digital pH meter	01 nos	.01 mm least count	
12	Digital micrometer	01 nos	0.01 mm least count	
13	Digital paint thickness meter for steel	02 nos	500 micron Range	
14	GI tray	02 nos each	600x450x50mm, 450x300x40mm, 300x250x40mm	
15	Electric mortar mixer	01 nos	0.25 CUM capacity	
16	Rebound hammer test	01 nos	Digital Rebound hammer	IS 13311
17	Screw Gauge	02 nos	0.1 mm-10mm, Least count 0.05	
18	Digital paint thickness meter for masanory/concrete painting measurement	02 nos	150 micron range	

**FORMAT FOR NO DEVIATION CERTIFICATE**  
**(To be submitted in the bidder's letter head)**

BHARAT HEAVY ELECTRICALS LIMITED,  
 Power Sector - Eastern Region,  
 Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
 Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	(i)PKG-A: Civil,structural and architectural works including piling and ground improvement etc of 1x250 MW unit # 8 for 2x 250MW units at Barauni TPP,Begusarai, Bihar. (ii)PKG-B: Civil,structural and architectural works including piling and ground improvement etc of 1x250 MW unit # 9 for 2x 250MW units at Barauni TPP,Begusarai, Bihar.	
Ref	1.0	Tender no PSER:SCT:BRM-C1273:11
	2.0	BHEL's NIT, vide reference no PSER:SCT:BRM-C1273:2584, dated 05-11-2011.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:BRM-C1273:TCN-01, dated 15-11-2011.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:BRM-C1273:TCN-02, dated 22-11-2011.
	5.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691/ 23211798/ 23211796

**VOLUME-III A  
PRICE SCHEDULE, REV-1  
(PACKAGE-A)**

**PKG-A: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, PA FAN FD FAN SA FAN & ID FAN FOUNDATIONS, TRANSFORMER YARD, ALL CABLE/PIPE RACKS-TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-1, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, DG BUILDING, SERVICE BUILDING, COMPRESSOR HOUSE, CST TANK FOUNDATIONS, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK 1X250 MW UNIT # 8 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.**

**TENDER NO - PSER:SCT:BRM-C1273:11**

**PREAMBLE**

1.0	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
2.0	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3.0	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4.0	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, taxes, 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 tender document and this schedule.
5.0	Unless otherwise specified & except for tender on lumpsum basis, for all item rate based tenders, the quantities of the various items mentioned in price schedule are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted/ accepted rates shall remain firm and valid as long as variation in total value of work executed under this contract including extra items, but excluding any price escalation, remains within +/- 30% (thirty percent) of the contract price given in the LOI/ WO.
6.0	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing 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.
7.0	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.
8.0	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted.
9.0	The tender shall be deemed to have studied the specifications, details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
10.0	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.
11.0	Evaluation & awarding will be done separately on PKG-A & PKG-B. PKG-A shall be decided first and who-so-ever is successful in PKG-A shall not be considered for PKG-B (They will not be considered for Reverse Auction/ price bid opening of PKG-B).

**VOLUME-III  
PRICE SCHEDULE, REV-1  
(PACKAGE-A)**

**PKG-A: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, PA FAN FD FAN SA FAN & ID FAN FOUNDATIONS, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-1, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, DG BUILDING, SERVICE BUILDING, COMPRESSOR HOUSE, CST TANK FOUNDATIONS, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK 1X250 MW UNIT # 8 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.**

**TENDER NO - PSER:SCT:BRM-C1273:11**

**SCH-1 - TOTAL PRICE**

SL NO	DESCRIPTION	AMOUNT (₹)
1.0	TOTAL PRICE OF SERVICE PART OF PKG-A AS PER OF SCH-2.	
2.0	TOTAL PRICE OF SUPPLY PART OF PKG-A AS PER OF SCH-3.	
<b>3.0</b>	<b>GRAND TOTAL PRICE (SCH-2 &amp; SCH-3 TOGETHR)</b>	

**NOTE**

1.0	Bidder's quoted grand total price at SL NO 3.0 above shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.
2.0	Price format shall not be changed by bidder in any case, since it may lead to cancellation of offer.
3.0	Bidder's quoted rates for non-schedule items under sl no 28.0 of SCH-2 shall also be applicable for scope under SCH-3.

VOLUME-III  
PRICE SCHEDULE, REV-1  
(PACKAGE-A)

PKG-A: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, PA FAN FD FAN SA FAN & ID FAN FOUNDATIONS, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-1, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, DG BUILDING, SERVICE BUILDING, COMPRESSOR HOUSE, CST TANK FOUNDATIONS, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK 1X250 MW UNIT # 8 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.

TENDER NO - PSER:SCT:BRM-C1273:11

SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.0	100	EARTH WORK (Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.)				
1.1	101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
1.1.1	a	Depth from ground level but not exceeding 2 m	CUM	51340.0		
1.1.2	b	Depth exceeding 2 m but not exceeding 4 m	CUM	29250.0		
1.1.3	c	Depth exceeding 4 m but not exceeding 6 m	CUM	9143.0		
1.2	102	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	9143.0		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.3	107	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with <b>selected materials from compulsorily excavated soil</b> available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.				
1.3.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	11325.0		
1.3.2	b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	36367.0		
1.4	108	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials <b>directly from excavation</b> and compacted as specified includ watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
1.4.1	b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	3150.0		
1.5	109	<b>Extra over ST No. 101 and 107</b> for carriage of excavated earth/selected materials for carriage beyond an initial lead of 500m.				
1.5.1	a	Carriage beyond 500 m and not exceeding 1 Km	CUM	30000.0		
1.5.2	b	Carriage beyond 1 Km and not exceeding 2 Km	CUM	30000.0		
1.5.3	c	Carriage beyond 2 Km and not exceeding 3 Km	CUM	2000.0		
1.6	111	<b>Supplying and filling sand</b> upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	8470.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.0	200	CONCRETE WORKS(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. complete as per drawing, specifications and as per direction of engineer in charge for the following.(Cement will be supplied by BHEL as per SCC free of cost):)				
2.1	201	Concrete of grade M7.5 (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.	CUM	50.0		
2.2	202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	3574.0		
2.3	204	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.				
2.3.1	b	M25 Grade	CUM	1153.0		
2.4	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 foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.				
2.4.1	a	M25 Grade	CUM	5565.0		
2.4.2	b	M30 Grade	CUM	17021.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.5	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 <b>in superstructure</b> at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>				
2.5.1	a	M25 Grade	CUM	7613.0		
2.6	A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade <b>M-30 Grade</b> in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level <b>except Top decks supported over Vibration Isolation system, TG deck and TG Columns</b> including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	6310.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.7	A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system), <b>top deck of TG foundation, TG Columns</b> at all levels including addition of suitable plasticizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.				
2.7.1	a	M30 grade (with 20mm nominal size graded stone aggregate)	CUM	750.0		
2.7.2	b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	150.0		
2.7.3	c	M40 grade (with 20mm nominal size graded stone aggregate)	CUM	10.0		
2.8	209	Extra over St. No. 205,206,A207 & A208 for <b>controlling of temperature</b> of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	7060.0		
2.9	210	Extra over ST Nos. 205 to 207 for <b>conducting UPV test</b> for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	7060.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.10	211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)				
2.10.1	a	M20 grade	CUM	284.0		
2.11	212	Screed concrete / bed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.				
2.11.1	a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	335.0		
2.11.2	b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)	CUM	100.0		
2.12	213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.				
2.12.1	a	M 25 grade	CUM	437.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.13	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 conforming 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.				
2.13.1	a	M 25 grade	CUM	50.0		
2.14	215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.				
2.14.1	a	Plain cement concrete of all grades	CUM	1.0		
2.14.2	b	Reinforced cement concrete of all grades	CUM	13.0		
2.15	216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUM	0.5		
2.16	217	Making opening in RCC slab or foundation by core cutter method upto 100mm dia and depth of cutting upto 250mm	NO	150.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.17	221	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 <b>in sloped surface of canal lining or channel cast in alternate panels with provision of expansion gap/construction joints</b> at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete, compaction with special equipments, etc all complete <b>as per specification &amp; drawing for the following.</b>				
2.17.1	b	M25 Grade	CUM	15.0		
3.0	300	FORM WORKS(Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.)				
3.1	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	44727.0		
3.2	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.	SQM	25275.0		
3.3	303	<b>Fairface Formwork</b> with good quality water proof ply wood of required thickness and smooth surface <b>for TG superstructure</b> (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	1400.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
3.4	304	Providing, fixing and removing <b>formwork in block-outs/pockets</b> and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.				
3.4.1	a	Upto 150 mm depth	Each	152.0		
3.4.2	b	Pockets of depths more than 150mm and upto 300 mm depth	Each	118.0		
3.4.3	c	Pockets of depths more than 300mm and upto 600 mm depth	Each	526.0		
3.4.4	d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	219.0		
3.4.5	e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	51.0		
3.4.6	Af	Pockets of depths more than 1500mm and upto 2500 mm depth	Each	36.0		
3.5	A306	<b>Extra over item no.301 for curved form work for foundations, footings, beams, walls, trenches, mass concreting etc as per specification.</b>	SQM	1035.0		
4.0	400	<b>REINFORCEMENT</b>				
4.1	401	Providing, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement to be supplied by contractor from SAIL/ RINL/ TISCO or as approved by BHEL/cutomer).	MT	25.0		
4.2	402	Transport from store, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement will be supplied by BHEL as per SCC free of cost)	MT	10.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
4.3	403	Transport from store, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements</b> of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement will be supplied by BHEL as per SCC free of cost)	MT	3089.0		
4.4	407	Providing, straightening, cutting, bending, placing in position at any level, binding in position <b>high yield strength steel reinforcements</b> in <b>brickwork</b> including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.(Reinforcement to be supplied by contractor from SAIL/ RINL/ TISCO or as approved by BHEL/cutomer).	MT	5.0		
5.0	500	WATER PROOFING WORKS(Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 10 years). (Cement will be supplied by BHEL as per SCC free of cost).)				
5.1	501	Providing and laying <b>underbed grading plaster with cement mortar 1:4</b> (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	7050.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
5.2	502	Providing and laying in-situ <b>light weight foam concrete insulation</b> as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following. Sand plaster will be paid separately as per BOQ item.				
5.2.1	c	Average 100 mm thickness	SQM	4200.0		
5.3	503	Providing and applying <b>bitumen felt water proofing for normal treatment</b> having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with one layer of felt consisting of five courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete. (For description of layers refer specification)				
5.3.1	a	<b>With hessian base felt</b>	SQM	7050.0		
5.4	507	<b>Providing and laying wearing course</b> consisting of <b>25mm thick plain cement concrete</b> of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	6418.0		
5.5	508	Providing and laying <b>cement concrete chequered flooring tiles</b> of 22 mm thickness and size 250x250 mm / 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway and entire equipment area with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	200.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
5.6	509	Providing and applying two coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	35244.0		
5.7	511	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	100.0		
5.8	512	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	1160.0		
5.9	513	Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation	SQM	100.0		
6.0	600	JOINTS AND FILLERS (Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
6.1	601	Supplying & installation of bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.				
6.1.1	a	12 mm wide joints.	SQM	107.0		
6.1.2	b	20 mm wide joints.	SQM	15.0		
6.1.3	c	25 mm wide joints	SQM	185.0		
6.1.4	d	50 mm wide joints	SQM	140.0		
6.2	602	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
6.2.1	a	12mm X 25mm	RM	3588.0		
6.2.2	b	20mmX25mm	RM	15.0		
6.2.3	c	25mmX25mm	RM	180.0		
6.2.4	d	50mmX25mm	RM	695.0		
6.3	603	Supplying and filling in position hot applied <b>bitumin sealing compound</b> (Grade A) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
6.3.1	b	12mm X 25mm	RM	2.0		
6.4	606	Providing and fixing <b>PVC water stops</b> in joints conforming to IS 12200 & IS 15058 all complete for the following:				
6.4.1	a	150 mm wide and 8 mm thick	RM	165.0		
6.4.2	b	230 mm wide and 8 mm thick	RM	90.0		
7.0	<b>700</b>	MS EMBEDMENTS (Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
7.1	701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, beams, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.(Contractor to supply all materials) Payment terms - a) On receipt of raw materials at site - 70%; b) On completion of erection & fixing - 30%.	MT	8.5		
7.2	702	Transport from store, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. BHEL will supply plates, angles, channel & ISMB etc. free of cost as per SCC	MT	100.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
7.3	703	Assembly,welding, fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.BHEL WILL SUPPLY FABRICATED MATERIALS.	MT	5.0		
7.4	704	Transportation,erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	20.0		
7.5	705	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.Contractors to supply all materials. Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.				
7.5.1	a	MS pipes of all diameters	Quintal	2.0		
7.5.2	b	PVC pipes / conduits of all diameters	Quintal	1.0		
7.5.3	c	UPVC pipes / conduits of all diameters	Quintal	1.0		
7.5.4	d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
7.5.4.1	i	Upto 250 kg	Each	10.0		
7.5.4.2	ii	Beyond 250 Kg and upto 500 kg	Each	10.0		
7.5.4.3	iii	Beyond 500 Kg and upto 750 kg	Each	10.0		
7.5.5	e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:		0.0		
7.5.5.1	i	Upto 250 kg	Each	10.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
7.5.5.2	ii	Beyond 250 Kg and upto 500 kg	Each	10.0		
7.5.5.3	iii	Beyond 500 Kg and upto 750 kg	Each	10.0		
7.5.6	A705e	Expansion fasteners <b>chemical adhesive type</b> (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
7.5.6.1	i	Upto 250 kg	Each	10.0		
7.5.6.2	ii	Beyond 250 Kg and upto 500 kg	Each	10.0		
7.5.6.3	iii	Beyond 500 Kg and upto 1000 kg	Each	10.0		
8.0	<b>800</b>	GROUTING (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.)				
8.1	801	Providing & grouting with <b>cement slurry mix</b> of approved ratio using <b>pressure pump</b> for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. (Cement will be supplied by BHEL as per SCC free of cost).	SQM	3.0		
8.2	802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with <b>mix 1:1 (1 cement :1 sand )</b> using non shrink admixture etc. all Complete.(Cement will be supplied by BHEL as per SCC free of cost).	CUM	9.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
8.3	803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).(Cement will be supplied by BHEL as per SCC free of cost).	CUM	162.0		
8.4	804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with <b>ConbextraGP-1 or equivalent</b> . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	51.0		
8.5	805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with <b>Conbextra GP-2 or equivalent</b> . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	10.0		
9.0	900	DOORS, WINDOWS, VENTILATORS, LOUVERS (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.)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.1	902	Providing and fixing <b>teakwood frame panel door</b> shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	20.0		
9.2	903	Providing, fitting and fixing <b>solid core flush door shutter</b> as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish 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. (Finish painting paid separately)	SQM	45.0		
9.3	904	Providing and fixing <b>single or double steel door shutters with 45mm thk flush design shutter</b> comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.	SQM	199.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.4	905	Providing and fixing <b>single or double steel door shutters</b> with <b>18 gauge M.S. sheets shutter</b> presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	15.0		
9.5	A906	Providing and fixing <b>anodized extruded aluminium doors (single or double shutter)</b> conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. <b>Glazing shall be clear toughened glass of 6mm thickness</b> including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	85.0		
9.6	907	<b>Providing and fixing fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color 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.Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.	SQM	40.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.7	908	Providing and fixing <b>steel windows/ventilator</b> with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)				
9.7.1	a	<b>openable type</b>	SQM	405.0		
9.7.2	b	<b>fixed type</b>	SQM	355.0		
9.8	909	Providing and fixing <b>anodised aluminium work</b> of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallc protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	675.0		
9.9	910	Providing and fixing of aluminium composite panel(ACP) of following thickness with PVDF or polyester coating for interior partition of approved shade ,color etc all complete as per specification.				
9.9.1	c	5mm	SQM	150.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.10	911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :				
9.10.1	a	Over head hydraulic door closures	Each	50.0		
9.11	912	Providing and fixing <b>pressed steel frames</b> fabricated from <b>16 gauge M.S sheet</b> mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	1200.0		
9.12	913	Providing and fixing in position <b>rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips</b> at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.				
9.12.1	a	<b>Hand Operated</b>	SQM	10.0		
9.12.2	b	<b>Mechanically Operated</b>	SQM	86.0		
9.12.3	c	<b>Electrically operated</b>	SQM	344.0		
9.13	914	Providing and fixing <b>PVC doors(25 thk double skin)</b> of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	45.0		
9.14	915	Providing, fixing and fitting of <b>glazing of first grade class</b> in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.14.1	b	4 mm thick clear float glass	SQM	50.0		
9.14.2	d	6 mm thick wired glass	SQM	647.0		
9.14.3	f	4 mm thick ground glass	SQM	32.0		
9.14.4	g	6 mm thick tinted heat reflecting type float glass	SQM	200.0		
9.14.5	h	6 mm thick clear toughened safety glass	SQM	10.0		
9.14.6	i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	125.0		
9.15	917	Providing and fixing 12 mm thick <b>BWP particle board</b> , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	100.0		
9.16	918	Providing and fixing <b>steel louvered window with ISMC 100 frame</b> all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	17.0		
9.17	919	Providing and fixing 1 mm thk. <b>MS sheet sliding shutters</b> with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	15.0		
10.0	<b>1000</b>	BRICKWORK (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. (Cement will be supplied by BHEL as per SCC free of cost ).)				
10.1	1001	Providing <b>brick work</b> in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions <b>below plinth</b> including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
10.1.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	CUM	611.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
10.2	1002	Providing <b>brick work</b> in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
10.2.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	CUM	5095.0		
10.3	1003	Providing <b>brick work</b> in cement mortar 1:4 (1 cement 4 coarse sand) in <b>partition walls</b> , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.				
10.3.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	SQM	1975.0		
10.3.2	d	Using <b>burnt clay bricks</b> of class designation 5.0 of nominal dimension	SQM	100.0		
10.4	1005	Providing <b>brick soling</b> including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.)- <b>Using flat bricks.</b>				
10.4.1	d	Using <b>burnt clay bricks</b> of class designation 5.0 of nominal dimension	SQM	250.0		
10.5	1006	<b>Breaking</b> of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	10.0		
10.6	1007	Providing and <b>encasing</b> of structural steel member with <b>masonry work</b> around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	CUM	25.0		
10.7	1009	<b>Making openings</b> in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	50.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
10.8	1011	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	25.0		
10.9	1012	Providing and filling brick bats in soak pits all complete.	CUM	10.0		
11.0	1100	DAMP PROOF COURSE (Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
11.1	1101	Providing Damp Proof Course 40mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (Cement will be supplied by BHEL as per SCC free of cost).	SQM	275.0		
12.0	1200	CEMENT MORTAR PLASTER (Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge. (Cement will be supplied by BHEL as per SCC free of cost).				
12.1	1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	16982.0		
12.2	1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	16982.0		
12.3	1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	5400.0		
12.4	1205	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	900.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
12.5	1207	<b>Forming groove</b> of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	50.0		
12.6	1208	Providing <b>drip coarse</b> on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	100.0		
12.7	1209	Providing and laying <b>encasement to box type steel beams</b> at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	2110.0		
12.8	1210	<b>Ruled pointing</b> in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	5.0		
13.0	<b>1300</b>	FINISHES TO CONCRETE / PLASTERED SURFACES (Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge. (PAINTS OF REPUTED BRAND OF REPUTED MANUFACTURER LIKE ICI/BURGER/ASIAN PAINTS OR EQUIVALENT))				
13.1	1301	Two or more coats of <b>white wash/ colour wash</b> as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	960.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
13.2	1302	Two or more coats of <b>Exterior masonry paint</b> (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and suitable pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	250.0		
13.3	1303	Providing and applying two or more coats of <b>oil bound destemper</b> as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	16252.0		
13.4	1305	Providing and applying two or more coats of <b>acrylic emulsion paint</b> as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	4725.0		
13.5	1306	Providing and applying 2 or more coats of <b>acid/alkali resistant paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	160.0		
13.6	1307	Two or more coats of <b>fire resistant transparent paint</b> as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications.	SQM	10.0		
13.7	1308	Two or more coats of black <b>anti-corrosive bitumastic</b> painting of approved brand and manufacture to give an even shade complete.	SQM	50.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
13.8	1309	Two or more coats of <b>synthetic enamel paint</b> of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	50.0		
13.9	1310	Providing and applying 3 coats of <b>water proof cement paint</b> of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	16282.0		
13.10	1312	Providing and applying 2 mm thick <b>plaster of paris punning on walls</b> including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	16252.0		
13.11	1313	Providing and applying ready made <b>Epoxy Paint</b> over areas other than steel structure with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, splash, spillage & acidic environment. The epoxy paint coating shall be of 150micron thickness over epoxy primer.	SQM	400.0		
13.12	1315	Providing and applying two or more coats of <b>Acrylic based weather coat paint</b> of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	20.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.0	1400	FLOORING AND SKIRTING (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. (Under bed concrete will be paid separately under relevant item). (Cement will be supplied by BHEL as per SCC free of cost).)				
14.1	1401	Providing and laying 50 mm thick <b>heavy duty cement concrete in flooring with metallic hardener pigmented topping</b> 12mm thick uniform graded treated iron particles 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 for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	9970.0		
14.2	A1401	Providing and laying 50 mm thick IPS heavy duty cement concrete in flooring. cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	3525.0		
14.3	1402	Providing and laying 25 mm thick <b>heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates )</b> flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles <b>in skirting and dado</b> complete as per specification.	SQM	25.0		
14.4	1405	Providing and laying 50 mm thick floor finish with <b>25mm thk Terrazo Tiles</b> including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	200.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.5	1406	Providing and laying <b>polished Kota stone</b> 18mm to 20mm thk in <b>flooring</b> . Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	3800.0		
14.6	1409	Providing <b>polished Kota stone 14mm to 16mm thk in skirting</b> projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	40.0		
14.7	1410	<b>Marble stone Flooring laid in 50mm overall thickness</b> with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	200.0		
14.8	1412	Providing and laying 18-20mm thick <b>polished Granite stone</b> flooring overall thickness 40mm of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	300.0		
14.9	1415	Providing and laying <b>polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster</b> including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	70.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.10	1416	Providing and laying <b>vitrified ceramic tiles of polished variety</b> of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3, 40 mm thick, with neat cement slurry etc. all complete for following				
14.10.1	a	7mm thick tiles In flooring	SQM	40.0		
14.10.2	b	10mm thick tiles In flooring	SQM	1450.0		
14.11	1417	Providing and laying <b>vitrified ceramic tiles of matt finish</b> of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3, 40mm thick, with neat cement slurry etc. all complete for following.				
14.11.1	a	7mm thick tiles In flooring	SQM	20.0		
14.11.2	b	10mm thick tiles In flooring	SQM	350.0		
14.12	1418	Providing and laying 10 mm thk non-skid fully <b>vitrified tiles</b> of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in <b>flooring and skirting</b> over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes				
14.12.1	b	600X600 mm	SQM	100.0		
14.12.2	Ac	600X300 mm	SQM	25.0		
14.13	1419	Providing and laying <b>granite stone slab</b> of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	20.0		
14.14	1420	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles</b> of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
14.14.1	a	300X300 mm	SQM	175.0		
14.14.2	b	600X600 mm	SQM	375.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.15	1422	Providing & fixing <b>Acid / Alkali resistant (Chemical resistant) tiles</b> confirming to IS:4457 in <b>flooring/Dado</b> and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
14.15.1	a	20mm thick	SQM	350.0		
14.16	1425	Providing and laying <b>polished Marble</b> slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in <b>staircase landing/skirting and corridors</b> over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	50.0		
14.16	1427	Providing and fixing <b>glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size</b> , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry including pigments, curing etc all complete for following thicknesses:				
14.16.1	b	7mm thick	SQM	100.0		
14.15	1429	Providing and fixing <b>removable type flooring system</b> consisting of <b>fire resistant particle board</b> of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	100.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.16	1430	Providing and fixing <b>dividing strips</b> in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.				
14.16.1	a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	15.0		
14.16.2	b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	5.0		
15.0	1500	ROOFING / SIDE CLADDING (Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.1	A1501	Transport and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum <b>0.8mm with minimum trough depth of 44 mm</b> having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.				
15.1.1	a	Span Upto 1800mm	SQM	3589.0		
15.1.2	b	Span Exceeding 1800mm and upto 2500 mm	SQM	3500.0		
15.2	1502	Providing and fixing <b>shear connectors</b> of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	10.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.3	1504	Transport and fixing <b>External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness</b> having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	3550.0		
15.4	1505	Transport and fixing <b>Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness</b> having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thckness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	2650.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.5	1506	Providing and fixing <b>insulation of resin bonded mineral wool</b> of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	SQM	2650.0		
15.6	1508	Providing and installing <b>under deck insulation</b> using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	250.0		
16.0	<b>1600</b>	FALSE CEILING (False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
16.1	1601	Providing and fixing <b>glass fibre reinforced gypsum plaster board (GRG) ceiling</b> (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.				
16.1.1	a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	325.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
16.2	1603	Providing and fixing <b>permanently colour coated aluminium false ceiling</b> of approved colour and <b>Luxalon 84 C</b> or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301) Payment terms - a) On receipt of aluminium false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	1150.0		
16.3	1604	Providing, fixing and laying <b>permanently colour coated aluminium false ceiling</b> of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.The work to be complete as per specifications, drawings and direction of engineer.(Materials for structural platform grid for movement made up of MS Channels shall be supplied by BHEL and shall be paid under ST No 2301) Payment terms - a) On receipt of aluminium false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	100.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
16.4	1606	Providing and Fixing 12mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movement platform.The work to be complete as per specifications, drawings and direction of engineer.( Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	600.0		
17.0	1700	RAIN WATER DOWN TAKE PIPES (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.)				
17.1	1702	Providing and fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	50.0		
17.2	1703	Providing and fixing HCl down take pipes of 150mm dia with water tight lead joint etc. all complete.	RM	160.0		
17.3	1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	50.0		
17.4	1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	200.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
17.5	1707	Transport and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
17.5.1	b	150 mm Dia	RM	3635.0		
18.0	1800	MISCELLANEOUS WORKS (Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.)				
18.1	1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 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	7031.0		
18.2	1805	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete.	SQM	400.0		
18.3	1806	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	400.0		
18.4	1810	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	27.0		
18.5	1812	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing rods shall be supplied by BHEL free of cost).	MT	30.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.6	1812B	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	20.0		
18.7	1812C	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	10.0		
18.8	1812D	Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	30.0		
18.9	1812E	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	50.0		
18.10	1813	Providing <b>Earthing pit</b> as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	25.0		
18.11	1817	Providing and fixing <b>HDPE pipes in</b> concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.				
18.11.1	a	Upto 75 mm dia	RM	100.0		
18.11.2	b	100 mm dia	RM	100.0		
18.11.3	c	150 mm dia	RM	25.0		
18.11.4	d	200 mm dia	RM	25.0		
18.12	1822A	Cutting of <b>groove</b> of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	700.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.13	1822B	Cutting of existing concrete/ RCC work inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at any level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	20.0		
18.14	A1834	Design, supply, fabrication, erection of <b>stoplog/sluice/screw gates gates in Pumps Houses</b> with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, applying Two Coates of ZINC RICH Premier (EPILUX 4 or equivalent) of 30 Micron each followed by Two Coates of ZINC RICH Premier Intermediate Paint (MIO) (60 Micron Each) followed by three Coates of coal tar epoxy 30 Microns each and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose) (SS component shall be measured separately for payment) Payment terms - a) Design & engg - 4%; b) Materials receipt at site- 60%; c) On completion of ern & fixing - 26%; d) On testing - 10%.	MT	1.0		
18.15	A1836	Providing and laying <b>cinder filling</b> in the toilets complete as directed by engineer in charge.	CUM	30.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.16	A1837	Providing and laying <b>foam concrete blocks</b> in the toilets/sunken slab etc. complete as directed by engineer in charge.	CUM	30.0		
18.17	1838	Sprinkling of water by water tanker fitted with perforated GI Pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL Site Engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling.	TANK-HR	2916.0		ok
19.0	2000	FENCING AND GATES(Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
19.1	2002	Supplying and erecting in position <b>2.4 m high galvanised chain linked fencing</b> conforming to IS 2761 of <b>10G</b> hot dip galvanised steel wires woven in the form of zig-zag mesh giving an opening size of 50 mm square. <b>GI barbed wire fencing of height of 600 mm</b> confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	50.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
19.2	2003	Supplying and erecting in position <b>2.4 m high PVC coated galvanised chain linked fencing</b> of minimum <b>8 gauge</b> (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. <b>Concertina of height of 600 mm</b> at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)Payment terms - a) On receipt of chain link fencing at site - 50%; b) On completion of erection & fixing - 50%.	RM	250.0		
19.3	2009	Supply, fabrication and installing in position and testing <b>galvanised MS Gates</b> out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	15.0		
20.0	2100	WATER SUPPLY (Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
20.1	2101	Providing and fixing in position tested heavy duty type <b>chromium plated (CP) brass long neck bib cocks</b> including sockets, union, nuts etc all complete - <b>15mm</b> nominal bore.	EACH	20.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
20.2	2102	Providing and fixing in position heavy duty <b>brass stop cock</b> of approved quality including all specials etc all complete - <b>15mm</b> nominal bore.	EACH	11.0		
20.3	2103	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality including all specials etc all complete for following sizes:		0.0		
20.3.1	a	25mm nominal bore.	EACH	16.0		
20.4	2104	Providing and fixing <b>GI pipes class B medium class</b> conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, <b>complete for internal works</b> with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:		0.0		
20.4.1	a	15 mm nominal bore.	RM	180.0		
20.4.2	b	20 mm nominal bore.	RM	350.0		
20.4.3	c	25 mm nominal bore.	RM	150.0		
20.5	2105	Providing and fixing <b>GI pipes class B complete for external work</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:		0.0		
20.5.1	a	15 mm nominal bore.	RM	230.0		
20.5.2	b	20 mm nominal bore.	RM	225.0		
20.5.3	c	25 mm nominal bore.	RM	165.0		
20.5.4	d	50 mm nominal bore.	RM	125.0		
20.6	2106	Providing and fixing <b>610mmx453mmx6mm thk mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	13.0		
20.7	2107	Providing and fixing <b>610mmx127mmx6mm thk clear glass</b> with C.P Guard rails and mounted on C.P. brackets etc all complete.	EACH	16.0		
20.8	2108	Providing and fixing 25 mm diameter <b>stainless steel towel rails</b> (600mm X 25mm) all complete.	EACH	16.0		
20.9	2109	Providing and fixing 20mm dia <b>chromium plated M.S. pipes</b> wall mounted <b>towel rod</b> with C.P. Brackets etc all complete.	EACH	7.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
20.10	2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	16.0		
20.11	2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	16.0		
20.12	2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	30.0		
20.13	2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	1.0		
20.14	2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.		0.0		
20.14.1	a	1000 litres capacity	EACH	6.0		
20.14.2	b	2000 litres capacity	EACH	1.0		
20.14.3	Ad	500 litres capacity	EACH	6.0		
20.15	2115	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	4.0		
21.0	2200	SANITARY WORKS (Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.1	2201	Supply and fixing <b>glazed vitreous china Wash Basin</b> conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.				
21.1.1	a	White	EACH	18.0		
21.1.2	b	Colored	EACH	2.0		
21.2	2202	Providing and fixing approved vitreous china <b>laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5)</b> with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	1.0		
21.3	2203	Providing and fixing <b>stainless steel kitchen sink</b> of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	8.0		
21.4	2204	Providing and fixing <b>colour glazed vitreous china European type water closet conforming to IS:2556</b> with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.		0.0		
21.4.1	a	Floor mounted	EACH	11.0		
21.4.2	b	Wall mounted	EACH	3.0		
21.5	2205	Providing and fixing <b>colour glazed vitreous indian type Orissa pattern (580x440mm) water closet</b> conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	7.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.6	2206	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	14.0		
21.7	2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.				
21.7.1	a	75mm dia pipes	RM	475.0		
21.7.2	b	110mm dia pipes	RM	675.0		
21.7.3	c	160mm dia pipes	RM	1190.0		
21.7.4	d	200mm dia pipes	RM	1050.0		
21.8	2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment terms - a) On receipt of material at site - 50%; b) On completion of erection & fixing - 50%. Excavation, backfilling shall be paid as per BOQ items.				
21.8.1	a	200mm dia	RM	75.0		
21.8.2	b	300mm dia	RM	150.0		
21.8.3	c	450mm dia	RM	75.0		
21.8.4	b	600mm dia	RM	35.0		
21.8.5	e	900mm dia	RM	25.0		
21.9	2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment terms - a) On receipt of material at site - 50%; b) On completion of erection & fixing - 50%. Excavation, backfilling shall be paid as per BOQ items.				
21.9.1	a	150mm dia	RM	300.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.9.2	b	250mm dia	RM	450.0		
21.9.3	c	300mm dia	RM	785.0		
21.9.4	d	500mm dia	RM	725.0		
21.10	2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	6.0		
21.11	2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	4.0		
21.12	2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:				
21.12.1	a	100x100mm P or S Type.	EACH	14.0		
21.12.2	b	150x100mm P or S Type.	EACH	1.0		
21.12.3	c	150x150mm P or S Type.	EACH	6.0		
21.13	2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:				
21.13.1	a	100x100mm P or S Type.	EACH	10.0		
21.13.2	b	150x100mm P or S Type.	EACH	10.0		
21.13.3	c	150x150mm P or S Type.	EACH	8.0		
21.14	2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	11.0		
21.15	2216	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	11.0		
21.16	2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	11.0		
21.17	2218	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	1.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.18	2219	Providing and fixing white vitreous <b>urinal partitions</b> of size 675x325x85mm all complete.	EACH	13.0		
21.19	A2221	Providing, laying sand CI <b>pipes</b> with lead joints conforming to IS 1729 complete for following.				
21.19.1	a	50mm dia	RM	20.0		
21.19.2	b	75mm dia	RM	20.0		
21.19.3	c	100mm dia	RM	20.0		
21.19.4	d	150mm dia	RM	10.0		
21.20	A2222	Providing, laying spun CI <b>pipes</b> with conforming to IS 1536 complete for following.				
21.20.1	a	75mm dia	RM	20.0		
21.20.2	b	100mm dia	RM	20.0		
21.20.3	c	150mm dia	RM	20.0		
21.20.4	d	200mm dia	RM	20.0		
21.20.5	e	250mm dia	RM	20.0		
21.20.6	f	300mm dia	RM	15.0		
22.0	2300	<b>STRUCTURAL STEEL</b> (Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.1	A2301	Transport, fabrication and erection of <b>structural steel with mild steel rolled section / built up section / combination of both</b> conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, ladders 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, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc <b>including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection) (DFT not less than 25 Microns for each coat)</b> , connection design & preparation of fabrication drgs, collection of steel from stores, 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),				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
		assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 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), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (MS PLATE, ISMB, ANGLE, CHANNEL, STAINLESS STEEL PLATE, CHOD PLATE SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER TCC). Payments terms - a). Fabrication - 65%; b) Erection - 25%; c) Alignment - 10%.	MT	10138.0		
22.2	A2302	Extra over ST NO. A2301 for <b>blast cleaning of steel structures</b> to near white metal surface(Sa 2 1/2 ) before applying the primer all complete.	MT	10138.0		
22.3	2304	Providing and applying two coats of <b>synthetic enamel paint</b> 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	10138.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.5	2307	Transport, erection and alignment of factory made <b>electroforged galvanised grating units</b> 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	30.0		
22.6	2308	Transport, erection and alignment of factory made <b>galvanised welded grating units</b> with mild steel 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. fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	15.0		
22.7	2310	Transport, erection and fixing in position of <b>permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363)</b> and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	Quintal	150.0		
22.8	2311	<b>Transport, erection and fixing in positing of high strength structural bolts</b> (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	375.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.9	2312	<b>Dismantling of steel structure</b> , lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete. (MS PLATE, ISMB, ANGLE, CHANNEL, STAINLESS STEEL PLATE, CHQD PLATE SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER TCC).	MT	25.0		
22.10	2313	Addition to, alterations in and/or modification of " <b>Erection Marks</b> " including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following: (MS PLATE, ISMB, ANGLE, CHANNEL, STAINLESS STEEL PLATE, CHQD PLATE SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER TCC).				
22.10.1	a	In erected position	MT	25.0		
22.10.2	b	In fabrication yard	MT	25.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.11	2314	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	25.0		
22.12	2316	Transport, fabrication and erection of <b>minimum 4 mm thick stainless steel liner of grade AISI-304</b> ; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.BHEL WILL SUPPLY STAINLESS STEEL PLATE FREE OF COST AS PER SCC	MT	6.0		
22.13	2317	Providing and fixing in position <b>PTFE type sliding bearings</b> of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of $\pm 50$ mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.				
22.13.1	a	20 Tons	EACH	15.0		
22.13.2	b	25 Tons	EACH	20.0		
22.13.3	c	40 Tons	EACH	3.0		
22.13.4	d	50 Tons	EACH	3.0		
22.13.5	e	60 Tons	EACH	3.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.14	2319	Supply, fabrication and fixing of <b>stainless steel (AISI-316 quality) pipe hand railing</b> of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms- a)on receipt of materials at site- 65%; b) Erection & fixing- 35%.	MT	1.0		
22.15	2320	Transport, fabrication and fixing painting of <b>GI pipe hand railing (900 mm high)</b> of 32 mm/40 mm dia (Medium Grade) including all labour, painting etc. all complete.	MT	36.0		
22.16	2321	Conducting <b>radiography test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	100.0		
22.17	2322	Conducting <b>ultasonic test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	100.0		
22.18	2323	Conducting <b>ultasonic test on steel plates</b> as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	SQM	50.0		
22.19	2324	Conducting <b>magnetic particle test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	100.0		
22.20	2325	Conducting <b>dye penetration test on welds</b> wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	60.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.21	2326	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other dtructures including all materials, labour, electrodes etc complete (all materials to be supplied by the vendor).	NO	20.0		
23.0	2400	<b>ROAD WORKS(Providing Road Work including necessary material, labour, machinery, transportation etc as per specification, drawing, relevant IRC &amp; IS codes and as directed by the Engineer-in-charge for the following.)</b>				
23.1	2401A	<b>Preparation of sub grade</b> by excavating earth to required depth in all types of soil including ash, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1km etc all complete as per specification.	CUM	15613.0		
23.2	2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete.	CUM	14502.0		
23.3	2403	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	565.0		
23.4	2404	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size, stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	1414.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.5	2405	Providing & laying <b>water bound macadam base course</b> in layers of required thickness with stone aggregate 63mm to 40mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	464.0		
23.6	2406	Laying <b>water bound macadam base course</b> with stone aggregate 50mm to 20mm size stone screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	857.0		
23.7	2408	Providing & applying <b>tack coat</b> of low viscosity liquid bitumen of grade 80/100 conforming to IS 73, 217 or 454 as applicable @ 6 kg/ 10 sqm for bituminous surface including cleaning with compressed air etc all complete.	SQM	5715.0		
23.8	2409	Providing, mixing & laying of <b>dense bituminous macadam (DBM) course</b> of specified thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material including hot mixing, hot laying, rolling etc all complete for the following.				
23.8.1	2409.a	<b>55mm</b> compacted thickness	SQM	5715.0		
23.9	2410A	Providing, mixing & laying <b>25 mm thick semi dense bituminous concrete(SDBC)</b> in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	5715.0		
23.10	2411	Providing and applying <b>liquid seal coat</b> comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	5715.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.11	2412	Supplying and laying 400mmx150mmx350mm deep <b>precast concrete kerb stone</b> of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. Cement will be supplied by BHEL free of cost as per TCC.	RM	1790.0		
23.12	2413	Providing & laying <b>edge protection</b> on both edges of black topping using brick on edge (bricks with crushing strength of 75 kg/cm <sup>2</sup> ) with full brick width (230 mm) etc all complete.	RM	10.0		
23.13	2414	Supply and laying 150mm dia R.C.C NP-2 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	258.0		
23.14	2417	Providing and laying of plain cement concrete of grade <b>M15</b> using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete. Cement will be supplied by BHEL free of cost as per TCC.	CUM	30.0		
23.16	2419	Providing & laying dry lean cement <b>concrete of grade M15</b> with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. Cement will be supplied by BHEL free of cost as per TCC.	CUM	5.0		
23.17		<b>REINFORCEMENT</b>				
23.17.1	2420	Providing and fixing in position <b>MS dowel bar</b> reinforcement including surface <b>painted with bitumen and greasing</b> , dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. Contractor to supply reinforcement from SAIL /TISCO / RINL or as approved by BHEL/CUSTOMER).	MT	3.0		
23.18		<b>MISCELLANEOUS</b>				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.18.1	2423	Providing & installation of <b>bitumen impregnated fibre board</b> of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	40.0		
23.18.2	2424	Providing and filling in position <b>hot applied bitumen sealing compound (Grade A)</b> of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	40.0		
23.18.3	2425	Providing and laying <b>debonding strip/tape</b> of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	15.0		
23.18.4	2426	Providing & laying <b>75 mm thick precast interlocking concrete pavers</b> of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	150.0		
23.18.5	2427	Providing and laying <b>50mm thick sand layer</b> below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	525.0		
24.0	2500	<b>PILING WORKS</b>				
24.1	2501A	<b>Mobilisation of Driven cast in situ RCC piling rigs</b> and all accessories capable of installing 500mm/550mm diameter piles in all types of soil, ash to project site and demobilisation of the same after completion of piling works etc all complete. Payments: a) mobilisation and commissioning of rig- 80%, b) demobilisation- 20%)	SET	6.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
24.2	2503A	Installation of <b>driven cast-in-situ RCC vertical pile</b> as per IS 2911 (Part 1, Sec. 1) by driving a suitable MS casing pipe (removable) having detachable MS shoe (flat/conical) at the bottom and driving using atleast 5 MT hammer for the length as specified ( <b>length to be measured from pile cut-off level to the bottom of pile</b> )/for the desired set criteria (to be finalised during contract stage) so as to acheive the safe load carrying capacity as mentioned using cement concrete grade M30 conforming to IS:456 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete including providing all materials ( <b>but excluding reinforcement steel for which measurement/payment shall be made separately</b> ), providing plasticser wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap, empty driving etc including providing approved MS shoe(design and drawing of MS shoe shall be submitted by bidder for approval without extra cost to BHEL/Owner) etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. (Cement & Reinforcement will be supplied by BHEL as per SCC free of cost).				
24.2.1	b	Pile with <b>550 mm</b> diameter and <b>18 m</b> length below cut off level	Each	3341.0		
24.3	A2504	Extra over ST. No. 2503 for pile length more than the specified length of 18m below cut off level for the following.				
24.3.1	Ac	For 550 mm diameter pile	Rm	3341.0		
24.4	2505	Rebate on ST.No.2503 for pile length less than the specified length of 18m below cut off level for the following.				
24.4.1	Ac	For 550 mm diameter pile	Rm	5012.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
24.5	2507A	Conducting initial load test upto a maximum test load of 2.5 times the safe load capacity on single pile as specified in accordance with IS 2911 Part-4 including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile ( installation of pile shall be paid separately) etc. all complete as per specification, drawing and as directed by engineer in - charge for the following:				
24.5.1	a	<b>For vertical compression test by cyclic load method</b>				
24.5.1.1	ii	550 mm diameter pile	Each	3.0		
24.5.2	b	<b>For lateral load test</b>				
24.5.2.1	ii	550 mm diameter pile	Each	3.0		
24.5.3	c	<b>For tension/uplift test</b>				
24.5.3.1	ii	550 mm diameter pile	Each	3.0		
24.6	2508A	Conducting routine load test 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 <b>excludng the cost of installation of job pile</b> complete as per specification, drawing and as directed by the engineer-in-charge for the following.				
24.6.1		<b>For vertical compression test by maintained load method</b>				
24.6.1.1	a	<b>For vertical compression test</b>				
24.6.1.1.1	ii	550 mm diameter pile	Each	34.0		
24.6.1.2	b	<b>For lateral load test</b>				
24.6.1.2.1	ii	550 mm diameter pile	Each	34.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
24.7	2509A	Carrying out pile integrity test on 550mm diameter pile including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc <b>but excluding the cost of installation of job pile</b> all complete as per specification and as directed by the engineer-in-charge.	Each	3341.0		
24.8	2511	Driving a 550mm diameter empty MS casing pipe with bottom closed with approved detachable MS shoe down to a maximum depth of 20 m below ground level using at least 5MTweigh drop hammer and furnishing the set calculation to establish a safe load carrying capacity of 115 MT in vertical compression including providing detachable MS shoe etc all complete	Each	5.0		
25.0	3000	<b>GROUND IMPROVEMNET BY COMPACTION STONE COLUMN</b>				
25.1	3001A	Providing and installing 500 /550 mm diameter and 12 m long driven cast-in-situ compaction stone column with <b>vibro compacting rig</b> by driving of suitable MS casing pipe (removable) and filling inside the casing pipe in layers of 1m using gravel shall be 50mm & down and each layer be well compacted by dynamic compaction method and shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired location including all materials, equipments etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	6228.0		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
25.2	3001B	Providing and installing 500 mm/550mm diameter and 12 m long driven cast-insitu compaction stone column by driving of suitable MS casing pipe (removable) having a detachable M.S.shoe (flat/conical) at the bottom and filling inside the casing pipe in layers of 1m using 1 (sand) : 2 (gravel; gravel shall be 50mm & down) and each layer be well compacted by dynamic compaction method before compaction, lift the casing for about 800mm from bottom and then the backfill shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired location including all materials, equipments etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	6228.0		
25.3	3002	Conducting plate load Test at specified depth using 600mmx600mmx25mm Mild steel plate as per IS-1888 and submission of approved test report etc as per specification. (earth work in excavation and back filling shall be paid extra as per relevant applicable item)	Each	3.0		
25.4	3003	Conducting Dynamic cone penetration Test at specified location as per IS-4968,Part-1 for a maximum depth up to 15m below ground level submission of approved test report etc as per specification .	Each	15.0		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
25.5	3004	Making 150mm nominal diameter bore hole up to a maximum depth of 15 m below ground level at various locations in all types of soil including laterite using suitable approved method of boring including chiselling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.0m interval alternate to collection of undisturbed soil samples up to 15m depth below ground level ; collection of undisturbed sample (UDS) at every 1.0m interval alternate to conducting standard penetration test up to 15 m depth below ground level; collection of disturbed soil samples and water samples, sealing and packing of samples, observation such as ground water table etc; transportation of all the collected samples to the laboratory and back filling of boreholes with sand on completion of the same etc all complete as per specification and as directed by the engineer-in-charge for depth below ground level as given below .	Rm	45.0		
25.6	3005	Conducting laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc all complete as per specification.				
25.6.1		a)Bulk density and moisture content	Each	8.0		
25.6.2		b) Relative Density	Each	8.0		
26.0		LEVELLING & GRADING				
26.1	2	<b>Earth work in stripping</b> of top soil upto a minimum <b>depth of 0.30m</b> below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a <b>lead upto 1km</b> etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	50000		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
26.2	3	Earth work in excavation upto any <b>depth below ground level in all types of soil</b> including moorum, pond ash/fly ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a <b>lead upto 1km</b> , spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	100000		
26.3	9	<b>Earth work in filling</b> upto any depth below ground level for grading to proper grade and level in layers <b>not exceeding 300mm loose thickness</b> with selected approved quality of pond ash/fly ash/soil from compulsorily <b>excavated soil available within a lead upto 1km</b> and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.				
26.3.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	100000		
27.0		MISCELLANEOUS				
27.1	MS-1	Pumping out water from CW Pit, Feed Pool, Cooling Tower Basin, Water logged areas etc. as an when required to facilitate erection & commissioning including provision of delevary pipe upto 150m etc. all complete as per site condition and instruction of engineer.	HP-Hour	1000		
27.2	MS-2	Providing service for manpower for cleaning and house keeping with all equipments, T & P etc. from various floor of power house and other buildings, boiler, ESP, Mill area and stacking at designated place.	Man HOUR	40000		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
27.3	MS-3	Removal and disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as directed by BHEL Engineer.				
27.3.1		a) Steel	MT	100		
27.3.2		b) Wood / Cable scrap	CUM	650		
27.3.3		c) Debris & Other waste materials.	CUM	1000		
<b>TOTAL</b>						
28.0	2800	Quote % above or % below or at par for items not covered as above of this schedule. The rate shall be derived from Delhi schedule of rate 2007(Reprint-2010).				
28.1	a	Rate of complete item	%			
28.2	b	Rate of supply of material at site only	%			
28.3	c	Rate for execution complete excluding supply of materials.	%			

VOLUME-III  
PRICE SCHEDULE, REV-1  
(PACKAGE-A)

PKG-A: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, PA FAN FD FAN SA FAN & ID FAN FOUNDATIONS, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-1, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, DG BUILDING, SERVICE BUILDING, COMPRESSOR HOUSE, CST TANK FOUNDATIONS, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK 1X250 MW UNIT # 8 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.

TENDER NO. PSER:SCT:BRM-C1273:11

SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.0	704 S	Supply and delivery at site mild steel foundation bolt of various diameter conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	20.0		

TENDER NO. PSER:SCT:BRM-C1273:11

## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.0	1501 S	Designing and supply permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hoithout extra cost to BHEL/Owner) etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. (Cement & Reinforcement will be supplied by BHEL as per SCC free of cost). sting - 10%.sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.				
2.1	a	Span Upto 1800mm	SQM	3589.0		
2.2	b	Span Exceeding 1800mm and upto 2500 mm	SQM	3500.0		

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VOLUME-IIIA

PRICE SCHEDULE, REV-0

(PKG-A)

SCH-3 - SUPPLY PRICE BU

TENDER NO - PSER:SCT:BRM-C1273:11

SIGNATURE WITH SEAL OF BIDDER

## TENDER NO. PSER:SCT:BRM-C1273:11

## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
3.0	1504 S	Designing and supply External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	3550.0		
4.0	1505 S	Design and supply Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	2650.0		
5.0	1707 S	Supply GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
5.1	b	150 mm Dia	RM	3635.0		

## TENDER NO. PSER:SCT:BRM-C1273:11

## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
	2307 S	Supplying factory made <b>electroforged galvanised grating units</b> 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 etc. all complete.	MT	30.0		
6						
7.0	2308 S	Supplying factory made <b>galvanised welded grating units</b> with mild steel 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. - fixing clamps, fittings, fixtures, all taxes, duties, packing etc. all complete.	MT	15.0		
8.0	2310 S	Supply <b>permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363)</b> and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc.	Quintal	150.0		
9.0	2311 S	<b>Supply high strength structural bolts</b> (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc.	Quintal	375.0		
10.0	2320 S	Supply <b>GI pipe for hand railing (900 mm high)</b> of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, etc.	MT	36.0		
11.0	2742	Providing service for manpower, for running and maintenance of BOREWELL pump set without supply of major equipment / parts.	Man-month	48.0		
12	2743	General purpose crawler crane (150T) with lattice boom & minimum 10M length jib suitable for strutral erection. (crane should be available at site for continuous and erection work including sundays and holidays without any additional cost).				
12.1	2743A	Mobilisation and de-mobilisation charge. Payments: a) 70% on mobilisation, b) Balance 30% on demobilisation.	LOT	1.0		
12.2	2743B	Monthly lumpsum crane hire charge including fuel, opertor and all other charges.	CRANE-MONTH	8.0		

TENDER NO. PSER:SCT:BRM-C1273:11						
SCH-3- SUPPLY PRICE BREAK UP						
SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14	2744.0	Heavy lift crawler crane (250T) with lattice boom & minimum 10/12M length jib suitable for erection of millbuilding and bunker structure. (crane should be available at site for continuous erection work including sundays and holidays without any additional cost).				
14.1	2744A	Mobilisation and de-mobilisation charge. Payments: a) 70% on mobilisation, b) Balance 30% on demobilisation.	LOT	1.0		
14.2	2744B	Monthly lumpsum crane hire charge including fuel, operator and all other charges.	CRANE-MONTH	12.0		
12.0		Supply, installation, erection, testing, commissioning, operation & maintenance of electronic road weigh bridge pitless type, 60Tx100kg with platform size of 16 Mx3 M with necessary supporting structures, control room with proper digital indicator, recorder, printer, PC with keyboard, display unit (15"), UPS (500VA), accuracy ±0.25% of actual weight, minimum graduation 10kg, maximum weight 60T, AVERY or equivalent make.	SET	1		
TOTAL						

**VOLUME-III A  
PRICE SCHEDULE, REV-1  
(PACKAGE-B)**

**PKG-B: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, FOUNDATIONS OF PA FAN, FD FAN, SA FAN & ID FAN, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-2, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK-2 OF 1X250 MW UNIT # 9 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.**

**TENDER NO - PSER:SCT:BRM-C1273:11**

**PREAMBLE**

1.0	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
2.0	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3.0	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4.0	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, taxes, 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 tender document and this schedule.
5.0	Unless otherwise specified & except for tender on lumpsum basis, for all item rate based tenders, the quantities of the various items mentioned in price schedule are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted/ accepted rates shall remain firm and valid as long as variation in total value of work executed under this contract including extra items, but excluding any price escalation, remains within +/- 30% (thirty percent) of the contract price given in the LOI/ WO.
6.0	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing 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.
7.0	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.
8.0	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted.
9.0	The tender shall be deemed to have studied the specifications, details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
10.0	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.
11.0	Evaluation & awarding will be done separately on PKG-A & PKG-B. PKG-A shall be decided first and who-so-ever is successful in PKG-A shall not be considered for PKG-B (They will not be considered for Reverse Auction/ price bid opening of PKG-B).

**VOLUME-III  
PRICE SCHEDULE, REV-1  
(PACKAGE-B)**

**PKG-B: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, FOUNDATIONS OF PA FAN, FD FAN, SA FAN & ID FAN, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-2, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK-2 OF 1X250 MW UNIT # 9 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.**

**TENDER NO - PSER:SCT:BRM-C1273:11**

**SCH-1 - TOTAL PRICE**

SL NO	DESCRIPTION	AMOUNT (₹)
1.0	TOTAL PRICE OF SERVICE PART OF PKG-A AS PER OF SCH-2.	
2.0	TOTAL PRICE OF SUPPLY PART OF PKG-A AS PER OF SCH-3.	
<b>3.0</b>	<b>GRAND TOTAL PRICE (SCH-2 &amp; SCH-3 TOGETHR)</b>	

**NOTE**

1.0	Bidder's quoted grand total price at SL NO 3.0 above shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.
2.0	Price format shall not be changed by bidder in any case, since it may lead to cancellation of offer.
3.0	Bidder's quoted rates for non-schedule items under sl no 28.0 of SCH-2 shall also be applicable for scope under SCH-3.

**VOLUME-III A  
PRICE SCHEDULE, REV-1  
(PACKAGE-B)**

PKG-B: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, FOUNDATIONS OF PA FAN, FD FAN, SA FAN & ID FAN, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-2, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK-2 OF 1X250 MW UNIT # 9 FOR 2X250 MW UNITS AT BARAUNI TPP,BEGUSARAI, BIHAR.

TENDER NO - PSER:SCT:BRM-C1273:11

SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.0	100	EARTH WORK (Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.)				
1.1	101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
1.1.1	a	Depth from ground level but not exceeding 2 m	CUM	49075		
1.1.2	b	Depth exceeding 2 m but not exceeding 4 m	CUM	27930		
1.1.3	c	Depth exceeding 4 m but not exceeding 6 m	CUM	8743		
1.2	102	Extra over ST No. 101 for dewatering of ground water by <b>well point method</b> as per IS 9759.	CUM	8743		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.3	107	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with <b>selected materials from compulsorily excavated soil</b> available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.				
1.3.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	11125		
1.3.2	b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	33367		
1.4	108	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials <b>directly from excavation</b> and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
1.4.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	100		
1.4.2	b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	3150		
1.5	109	<b>Extra over ST No. 101 and 107</b> for carriage of excavated earth/selected materials for carriage beyond an initial lead of 500m.				
1.5.1	a	Carriage beyond 500 m and not exceeding 1 Km	CUM	40000		
1.5.2	b	Carriage beyond 1 Km and not exceeding 2 Km	CUM	20000		
1.5.3	c	Carriage beyond 2 Km and not exceeding 3 Km	CUM	10000		
1.6	110	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness <b>using/with approved borrowed soil</b> (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.6.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	100		
1.7	111	<b>Supplying and filling sand</b> upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	6935		
2.0	200	<b>CONCRETE WORKS(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. complete as per drawing, specifications and as per direction of engineer in charge for the following. (Cement will be supplied by BHEL as per SCC free of cost):)</b>				
2.1	201	<b>Concrete of grade M7.5</b> (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as <b>filling course</b> at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	100		
2.2	202	Concrete of <b>grade M10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	3393		
2.3	204	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.				
2.3.1	b	M25 Grade	CUM	1085		

## TENDER NO - PSER:SCT:BRM-C1273:11

## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.4	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 <b>in foundations/substructure, grade slab, paving, drains, under floors</b> etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>				
2.4.1	a	M25 Grade	CUM	5565		
2.4.2	b	M30 Grade	CUM	16202		
2.5	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 <b>in superstructure</b> at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>				
2.5.1	a	M25 Grade	CUM	7028		
2.6	A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade <b>M-30 Grade</b> in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level <b>except Top decks supported over Vibration Isolation system, TG deck and TG Columns</b> including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	6310		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.7	A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system), <b>top deck of TG foundation, TG Columns</b> at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.				
2.7.1	a	M30 grade (with 20mm nominal size graded stone aggregate)	CUM	750		
2.7.2	b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	150		
2.7.3	c	M40 grade (with 20mm nominal size graded stone aggregate)	CUM	10		
2.8	209	Extra over St. No. 205,206,A207 & A208 for <b>controlling of temperature</b> of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	7060		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.9	210	Extra over ST Nos. 205 to 207 for <b>conducting UPV test</b> for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	7060		
2.10	211	Providing and <b>encasing</b> of structural steel member with <b>concrete</b> using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)				
2.10.1	a	M20 grade	CUM	184		
2.11	212	<b>Screed concrete / bed concrete</b> conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.				
2.11.1	a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	267		
2.11.2	b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)	CUM	100		
2.12	213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete <b>in precast works</b> like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent preacast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.				
2.12.1	a	M 25 grade	CUM	430		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.13	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 <b>in water retaining/conveying structures</b> including addition of suitable plastisizer cum waterproofing cement additives conforming 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.				
2.13.1	a	M 25 grade	CUM	50		
2.14	215	<b>Dismantling concrete</b> work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.				
2.14.1	b	Reinforced cement concrete of all grades	CUM	15		
2.15	216	<b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	10		
2.16	217	Making opening in RCC slab or foundation by core cutter method upto 100mm dia and depth of cutting upto 250mm	NO	150.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.17	221	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 <b>in sloped surface of canal lining or channel cast in alternate panels with provision of expansion gap/construction joints</b> at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete, compaction with special equipments, etc all complete <b>as per specification &amp; drawing for the following.</b>				
2.17.1	b	M25 Grade	CUM	10		
3.0	<b>300</b>	<b>FORM WORKS (Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.)</b>				
3.1	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	43871		
3.2	302	<b>Fairface form work</b> with good quality water proof ply wood of required thickness and smooth surface <b>above finished ground</b> floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	21155		
3.3	303	<b>Fairface Formwork</b> with good quality water proof ply wood of required thickness and smooth surface <b>for TG</b> superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	1400		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
3.4	304	Providing, fixing and removing <b>formwork in block-outs/pockets</b> and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.				
3.4.1	a	Upto 150 mm depth	Each	152		
3.4.2	b	Pockets of depths more than 150mm and upto 300 mm depth	Each	118		
3.4.3	c	Pockets of depths more than 300mm and upto 600 mm depth	Each	526		
3.4.4	d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	219		
3.4.5	e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	51		
3.4.6	Af	Pockets of depths more than 1500mm and upto 2500 mm depth	Each	36		
3.5	305	<b>Fairface plywood with filmface/laminated formwork</b> above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights where ever specifically mentioned in the drawing.	SQM	10		
3.6	A306	<b>Extra over item no.301 for curved form work for foundations, footings, beams, walls, trenches, mass concreting etc as per specification.</b>	SQM	100		
4.0	<b>400</b>	REINFORCEMENT				
4.1	401	Providing, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement to be supplied by contractor from SAIL/ RINL/ TISCO or as approved by BHEL/cutomer).	MT	5		
4.2	402	Transport from store, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement will be supplied by BHEL as per SCC free of cost)	MT	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
4.3	403	Providing, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements</b> of <b>TMT steel of grade Fe-500D or 500EQR</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement will be supplied by BHEL as per SCC free of cost)	MT	2952		
4.4	407	Providing, straightening, cutting, bending, placing in position at any level, binding in position <b>high yield strength steel reinforcements</b> in <b>brickwork</b> including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.(Reinforcement to be supplied by contractor from SAIL/ RINL/ TISCO or as approved by BHEL/cutomer).	MT	10		
5.0	<b>500</b>	<b>WATER PROOFING WORKS (Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge.(Contractor has to furnish a guarantee for material and workmanship for a minimum period of 10 years). (Cement will be supplied by BHEL as per SCC free of cost).)</b>				
5.1	501	Providing and laying <b>underbed grading plaster with cement mortar 1:4</b> (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	6510		
5.2	502	Providing and laying in-situ <b>light weight foam concrete insulation</b> as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following. Sand plaster will be paid separately as per BOQ item.				
5.2.1	a	Average 50 mm thickness	SQM	100		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
5.2.2	b	Average 75 mm thickness	SQM	280		
5.2.3	c	Average 100 mm thickness	SQM	5630		
5.3	503	Providing and applying <b>bitumen felt water proofing for normal treatment</b> having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with one layer of felt consisting of five courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete. (For description of layers refer specification)				
5.3.1	a	<b>With hessian base felt</b>	SQM	6510		
5.4	506	<b>Providing and applying PU based water proofing treatment with one coat of polyurethane</b> or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and <b>two successive liquid coatings of high solids content urethane pre-polymers</b> or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	20		
5.5	507	<b>Providing and laying wearing course</b> consisting of <b>25mm thick plain cement concrete</b> of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	5810		
5.6	508	Providing and laying <b>cement concrete chequered flooring tiles</b> of 22 mm thickness and size 250x250 mm / 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway and entire equipment area with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	200		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
5.7	509	<b>Providing and applying two coats of bitumen grade 85/25</b> as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	33294		
5.8	511	<b>Providing and mixing water proofing compound</b> conforming to IS:2645 in concrete or cement mortar all complete.	KG	100		
5.9	512	<b>Anti termite chemical treatment of soil</b> with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	10		
5.10	513	Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation	SQM	100		
6.0	<b>600</b>	JOINTS AND FILLERS (Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
6.1	601	Supplying & installation of <b>bitumen impregnated fibre board</b> confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.				
6.1.1	a	12 mm wide joints.	SQM	102		
6.1.2	b	20 mm wide joints.	SQM	5		
6.1.3	c	25 mm wide joints	SQM	160		
6.1.4	d	50 mm wide joints	SQM	140		
6.2	602	Providing and applying <b>polysulphide based sealant</b> conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:				
6.2.1	a	12mm X 25mm	RM	3583		
6.2.2	b	20mmX25mm	RM	5		
6.2.3	c	25mmX25mm	RM	155		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
6.2.4	d	50mmX25mm	RM	695		
6.3	603	Supplying and filling in position hot applied <b>bitumin sealing compound</b> (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
6.3.1	a	10mm X 40mm	RM	1		
6.3.2	b	12mm X 25mm	RM	5		
6.3.3	c	20mmX25mm	RM	1		
6.4	606	Providing and fixing <b>PVC water stops</b> in joints conforming to IS 12200 & IS 15058 all complete for the following:				
6.4.1	a	150 mm wide and 8 mm thick	RM	160		
6.4.2	b	230 mm wide and 8 mm thick	RM	120		
7.0	<b>700</b>	MS EMBEDMENTS (Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
7.1	701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. (Contractor to supply all materials) Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.	MT	9		
7.2	702	Transport from store, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. BHEL will supply plates, angles, channel & ISMB etc. free of cost as per SCC	MT	97		
	703	Assembly,welding, fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.BHEL WILL SUPPLY FABRICATED MATERIALS.	MT	3.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
7.3	704	Transportation,erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	21		
7.4	705	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.Contractors to supply all materials. Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.				
7.4.1	a	MS pipes of all diameters	Quintal	2		
7.4.2	b	PVC pipes / conduits of all diameters	Quintal	2		
7.4.3	c	UPVC pipes / conduits of all diameters	Quintal	2		
7.4.4	d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
7.4.4.1	i	Upto 250 kg	Each	11		
7.4.4.2	ii	Beyond 250 Kg and upto 500 kg	Each	11		
7.4.4.3	iii	Beyond 500 Kg and upto 750 kg	Each	11		
7.4.5	e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:		0		
7.4.5.1	i	Upto 250 kg	Each	15		
7.4.5.2	ii	Beyond 250 Kg and upto 500 kg	Each	15		
7.4.5.3	iii	Beyond 500 Kg and upto 750 kg	Each	15		
7.5	A705e	Expansion fasteners <b>chemical adhesive type</b> (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
7.5.1	i	Upto 250 kg	Each	20		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
7.5.2	ii	Beyond 250 Kg and upto 500 kg	Each	20		
7.5.3	iii	Beyond 500 Kg and upto 1000 kg	Each	20		
8.0	<b>800</b>	GROUTING (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.)				
8.1	801	Providing & grouting with <b>cement slurry mix</b> of approved ratio using <b>pressure pump</b> for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. (Cement will be supplied by BHEL as per SCC free of cost).	SQM	10		
8.2	802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with <b>mix 1:1 (1 cement :1 sand )</b> using non shrink admixture etc. all Complete.(Cement will be supplied by BHEL as per SCC free of cost).	CUM	8		
8.3	803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with <b>mix 1:1:2</b> (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).(Cement will be supplied by BHEL as per SCC free of cost).	CUM	164		
8.4	804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with <b>ConbextraGP-1 or equivalent</b> . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	51		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
8.5	805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with <b>Conbextra GP-2 or equivalent.</b> (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	10		
9.0	<b>900</b>	DOORS, WINDOWS, VENTILATORS, LOUVERS (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.)				
9.1	903	Providing, fitting and fixing <b>solid core flush door shutter</b> as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish 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. (Finish painting paid separately)	SQM	20		
9.2	904	Providing and fixing <b>single or double steel door shutters with 45mm thk flush design shutter</b> comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.	SQM	164		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.3	905	Providing and fixing <b>single or double steel door shutters</b> with <b>18 gauge M.S. sheets shutter</b> presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	10		
9.4	A906	Providing and fixing <b>anodized extruded aluminium doors (single or double shutter)</b> conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. <b>Glazing shall be clear toughened glass of 6mm thickness</b> including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	60		
9.5	907	<b>Providing and fixing fire proof steel doors</b> (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color 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.Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.	SQM	35		
9.6	908	Providing and fixing <b>steel windows/ventilator</b> with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.6.1	a	<b>openable type</b>	SQM	186		
9.6.2	b	<b>fixed type</b>	SQM	230		
9.7	909	Providing and fixing <b>anodised aluminium work</b> of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	350		
9.8	910	Providing and fixing of aluminium composite panel(ACP) of following thickness with PVDF or polyester coating for interior partition of approved shade ,color etc all complete as per specification.				
9.8.1	c	5mm	SQM	150		
9.9	911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :				
9.9.1	a	Over head hydraulic door closures	Each	30		
9.10	912	Providing and fixing <b>pressed steel frames</b> fabricated from <b>16 gauge M.S sheet</b> mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	1270		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.11	913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).Payment terms - a) On receipt of materials at site - 70%; b) On completion of erection & fixing - 30%.				
9.11.1	a	<b>Hand Operated</b>	SQM	10		
9.11.2	b	<b>Mechanically Operated</b>	SQM	71		
9.11.3	c	<b>Electrically operated</b>	SQM	336		
9.12	914	Providing and fixing <b>PVC doors(25 thk double skin)</b> of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	25		
9.13	915	Providing, fixing and fitting of <b>glazing of first grade class</b> in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.				
9.13.1	d	6 mm thick wired glass	SQM	628		
9.13.2	f	4 mm thick ground glass	SQM	20		
9.13.3	i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	135		
9.14	917	Providing and fixing <b>12 mm thick BWP particle board</b> , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	50		
9.15	918	Providing and fixing <b>steel louvered window with ISMC 100 frame</b> all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	15		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
9.16	919	Providing and fixing 1 mm thk. <b>MS sheet sliding shutters</b> with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	15		
10.0	<b>1000</b>	BRICKWORK (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.(Cement will be supplied by BHEL as per SCC free of cost ).)				
10.1	1001	Providing <b>brick work</b> in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions <b>below plinth</b> including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
10.1.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	CUM	460		
10.2	1002	Providing <b>brick work</b> in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
10.2.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	CUM	4620		
10.3	1003	Providing <b>brick work</b> in cement mortar <b>1:4</b> (1 cement 4 coarse sand) in <b>partition walls</b> , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.				
10.3.1	c	Using <b>burnt clay bricks</b> of class designation 7.5 of nominal dimension	SQM	1795		
10.3.2	d	Using <b>burnt clay bricks</b> of class designation 5.0 of nominal dimension	SQM	100		
10.4	1006	<b>Breaking</b> of existing brick <b>work</b> at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
10.5	1007	Providing and <b>encasing</b> of structural steel member with <b>masonry work</b> around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	CUM	35		
10.6	1009	<b>Making openings</b> in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	40		
10.7	1011	<b>Filling existing brick wall/ partition wall opening</b> at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	20		
10.8	1012	Providing and filling <b>brick bats in soak pits</b> all complete.	CUM	5		
11.0	<b>1100</b>	<b>DAMP PROOF COURSE (Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.)</b>				
11.1	1101	Providing Damp Proof Course 40mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (Cement will be supplied by BHEL as per SCC free of cost).	SQM	188		
12.0	<b>1200</b>	<b>CEMENT MORTAR PLASTER</b> (Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.(Cement will be supplied by BHEL as per SCC free of cost).)				
12.1	1201	Providing <b>18mm thick plaster</b> in two layers <b>outside</b> the building/boundary wall in cement <b>mortar 1:6</b> on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	14132		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
12.2	1202	Providing <b>12mm thick plaster inside</b> the building/boundary wall in cement mortar <b>1:6</b> on walls finished to a smooth finish as per specification all complete.	SQM	14132		
12.3	1204	Providing <b>6mm thick plaster on ceiling in cement mortar 1:4</b> finished to a smooth all complete.	SQM	2950		
12.4	1205	Providing <b>12mm thick plaster in walls, drains/culverts</b> with a paste of <b>neat cement @ 1kg/sqm</b> and rubbed smooth with trowel etc. all complete.	SQM	800		
12.5	1207	<b>Forming groove</b> of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	100		
12.6	1208	Providing <b>drip coarse</b> on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	25		
12.7	1209	Providing and laying <b>encasement to box type steel beams</b> at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	2130		
13.0	<b>1300</b>	FINISHES TO CONCRETE / PLASTERED SURFACES (Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.(PAINTS OF REPUTED BRAND OF REPUTED MANUFACTURER LIKE ICI/BURGER/ASIAN PAINTS OR EQUIVALENT))				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
13.1	1301	Two or more coats of <b>white wash/ colour wash</b> as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	1000		
13.2	1302	Two or more coats of <b>Exterior masonry paint</b> (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and suitable pigment. The paint shall be applied on a coat of primer over dried, prepared plaster	SQM	600		
13.3	1303	Providing and applying two or more coats of <b>oil bound destemper</b> as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	13402		
13.4	1305	Providing and applying two or more coats of <b>acrylic emulsion paint</b> as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	2825		
13.5	1306	Providing and applying 2 or more coats of <b>acid/alkali resistant paint</b> of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	160		
13.6	1308	Two or more coats of black <b>anti-corrosive bitumastic</b> painting of approved brand and manufacture to give an even shade complete.	SQM	50		
13.7	1309	Two or more coats of <b>synthetic enamel paint</b> of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	50		
13.8	1310	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	13082		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
13.9	1312	Providing and applying 2 mm thick <b>plaster of paris punning on walls</b> including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	13052		
13.10	1313	Providing and applying ready made <b>Epoxy Paint</b> over areas other than steel structure with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, splash, spillage & acidic environment. The epoxy paint coating shall be of 150micron thickness over epoxy primer.	SQM	400		
13.11	1315	Providing and applying two or more coats of <b>Acrylic based weather coat paint</b> of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	20		
14.0	<b>1400</b>	FLOORING AND SKIRTING (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. (Under bed concrete will be paid seperately under relevant item). (Cement will be supplied by BHEL as per SCC free of cost).)				
14.1	1401	Providing and laying 50 mm thick <b>heavy duty cement concrete in flooring</b> with <b>metallic hardener pigmented topping</b> 12mm thick uniform graded treated iron particles 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 for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	9375		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.2	A1401	Providing and laying 50 mm thick IPS heavy duty cement concrete in flooring. cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	3325		
14.3	1402	Providing and laying 25 mm thick <b>heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates )</b> flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles <b>in skirting and dado</b> complete as per specification.	SQM	25		
14.4	1406	Providing and laying <b>polished Kota stone</b> 18mm to 20mm thk in <b>flooring</b> . Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	3600		
14.5	1409	Providing <b>polished Kota stone 14mm to 16mm thk in skirting</b> projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	40		
14.6	1410	<b>Marble stone Flooring laid in 50mm overall thickness</b> with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	100		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.7	1412	Providing and laying 18-20mm thick <b>polished Granite stone</b> flooring overall thickness 40mm of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	50		
14.8	1415	Providing and laying <b>polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster</b> including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	20		
14.9	1416	Providing and laying <b>vitrified ceramic tiles of polished variety</b> of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3, 40 mm thick, with neat cement slurry etc. all complete for following				
14.9.1	a	7mm thick tiles In flooring	SQM	20		
14.9.2	b	10mm thick tiles In flooring	SQM	1000		
14.10	1417	Providing and laying <b>vitrified ceramic tiles of matt finish</b> of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3, 40mm thick, with neat cement slurry etc. all complete for following.		0		
14.10.1	a	7mm thick tiles In flooring	SQM	20		
14.10.2	b	10mm thick tiles In flooring	SQM	350		
14.11	1418	Providing and laying 10 mm thk non-skid fully <b>vitrified tiles</b> of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in <b>flooring and skirting</b> over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes				
14.11.1	Ac	600X300 mm	SQM	25		
14.12	1419	Providing and laying <b>granite stone slab</b> of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
14.13	1420	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles</b> of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
14.13.1	a	300X300 mm	SQM	150		
14.13.2	b	600X600 mm	SQM	350		
14.14	1422	Providing & fixing <b>Acid / Alkali resistant (Chemical resistant) tiles</b> confirming to IS:4457 in <b>flooring/Dado</b> and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
14.14.1	a	20mm thick	SQM	350		
14.15	1427	Providing and fixing <b>glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size</b> , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry including pigments, curing etc all complete for following thicknesses:				
14.15.1	b	7mm thick	SQM	100		
14.16	1429	Providing and fixing <b>removable type flooring system</b> consisting of <b>fire resistant particle board</b> of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	100		
14.17	1430	Providing and fixing <b>dividing strips</b> in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.				
14.17.1	a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	15		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.0	1500	ROOFING / SIDE CLADDING (Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
15.1	A1501	Transport and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum <b>0.8mm with minimum trough depth of 44 mm</b> having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.				
15.1.1	a	Span Upto 1800mm	SQM	4254		
15.1.2	b	Span Exceeding 1800mm and upto 2500 mm	SQM	3200		
15.2	1502	Providing and fixing <b>shear connectors</b> of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.3	1504	Transport and fixing <b>External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness</b> having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	3902		
15.4	1505	Transport and fixing <b>Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness</b> having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	2650		
15.5	1506	Providing and fixing <b>insulation of resin bonded mineral wool</b> of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	SQM	2650		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
15.6	1508	Providing and installing <b>under deck insulation</b> using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	250		
16.0	<b>1600</b>	FALSE CEILING (False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.)				
16.1	1601	Providing and fixing <b>glass fibre reinforced gypsum plaster board (GRG) ceiling</b> (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.				
16.1.1	a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	125		
16.2	1603	Providing and fixing <b>permanently colour coated aluminium false ceiling</b> of approved colour and <b>Luxalon 84 C</b> or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	1150		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
16.3	1604	Providing, fixing and laying <b>permanently colour coated aluminium false ceiling</b> of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Materials for structural platform grid for movement made up of MS Channels shall be supplied by BHEL and shall be paid under ST No 2301) Payment terms - a) On receipt of aluminium false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	100		
17.0	<b>1700</b>	<b>RAIN WATER DOWN TAKE PIPES (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>				
17.1	1702	<b>Providing and fixing galvanised MS</b> down take pipes of <b>100 mm dia-</b> Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	50		
17.2	1703	<b>Providing and fixing HCl</b> down take pipes of <b>150mm</b> dia with water tight lead joint etc. all complete.	RM	50		
17.3	1704	<b>Providing and fixing galvanised MS</b> down take pipes of <b>150 mm</b> dia- Medium quality as per IS:1239(part-I) all complete.	RM	50		
17.4	1705	<b>Providing and fixing UPVC</b> down take pipes of <b>110mm</b> diameter- Class 3 as per IS:4985 all complete.	RM	50		
17.5	1706	<b>Providing and fixing UPVC</b> down take pipes of <b>160mm</b> diameter- Class 3 as per IS:4985 all complete.	RM	50		
17.6	1707	<b>Transport and fixing GI</b> down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
17.6.1	b	150 mm Dia	RM	3425		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.0	1800	<b>MISCELLANEOUS WORKS (Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.)</b>				
18.1	1801	<b>Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm</b> 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	6917		
18.2	1810	Providing, laying and fixing <b>rails and guide rails in concrete</b> for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	27		
18.3	1811	Providing and fixing <b>weep holes</b> in Drains consisting of <b>100 mm dia HDPE pipe sleeves</b> with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	10		
18.4	1812	Laying of <b>earthing mats/rods</b> including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing rods shall be supplied by BHEL free of cost).	MT	30		
18.5	1812B	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	20.0		
18.6	1812C	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	10.0		
18.7	1812D	Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	30.0		
18.8	1812E	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items.)	NO	50.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.9	1813	Providing <b>Earthing pit</b> as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	25		
18.10	1817	Providing and fixing <b>HDPE pipes in</b> concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.				
18.10.1	a	Upto 75 mm dia	RM	100		
18.10.2	b	100 mm dia	RM	100		
18.10.3	c	150 mm dia	RM	25		
18.10.4	d	200 mm dia	RM	25		
18.11	1822A	Cutting of <b>groove</b> of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	700		
18.12	1822B	Cutting of existing concrete/ RCC work inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at any level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	20.0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
18.13	A1834	Design, supply, fabrication, erection of <b>stoplog/sluice/screw gates gates in Pumps Houses</b> with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, applying Two Coates of ZINC RICH Premier (EPILUX 4 or equivalent) of 30 Micron each followed by Two Coates of ZINC RICH Premier Intermediate Paint (MIO) (60 Micron Each) followed by three Coates of coal tar epoxy 30 Microns each and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose) (SS component shall be measured separately for payment)	MT	1		
18.14	1834	Sprinkling of water by water tanker fitted with perforated GI Pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL Site Engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling.	TANK-HR	2916		
18.15	A1836	Providing and laying <b>cinder filling</b> in the toilets complete as directed by engineer in charge.	CUM	30		
18.16	A1837	Providing and laying <b>foam concrete blocks</b> in the toilets/sunken slab complete as directed by engineer in charge.	CUM	30		
19.0	<b>2000</b>	FENCING AND GATES (Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.)				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
19.1	2003	Supplying and erecting in position <b>2.4 m high PVC coated galvanised chain linked fencing</b> of minimum <b>8</b> gauge (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. <b>Concertina of height of 600 mm</b> at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)Payment terms - a) On receipt of chain link fencing at site - 50%; b) On completion of erection & fixing - 50%	RM	250		
19.2	2009	Supply, fabrication and installing in position and testing <b>galvanised MS Gates</b> out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	11		
20.0	<b>2100</b>	WATER SUPPLY (Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
20.1	2101	Providing and fixing in position tested heavy duty type <b>chromium plated (CP) brass long neck bib cocks</b> including sockets, union, nuts etc all complete - <b>15mm</b> nominal bore.	EACH	12		
20.2	2102	Providing and fixing in position heavy duty <b>brass stop cock</b> of approved quality including all specials etc all complete - <b>15mm</b> nominal bore.	EACH	7		
20.3	2103	Providing and fixing in position heavy duty <b>brass full way valve</b> with wheel of approved quality including all specials etc all complete for following sizes:		0		
20.3.1	a	25mm nominal bore.	EACH	12		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
20.4	2104	Providing and fixing <b>GI pipes class B medium class</b> conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, <b>complete for internal works</b> with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:				
20.4.1	a	15 mm nominal bore.	RM	130		
20.4.2	b	20 mm nominal bore.	RM	300		
20.4.3	c	25 mm nominal bore.	RM	100		
20.5	2105	Providing and fixing <b>GI pipes class B complete for external work</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:				
20.5.1	a	15 mm nominal bore.	RM	180		
20.5.2	b	20 mm nominal bore.	RM	175		
20.5.3	c	25 mm nominal bore.	RM	115		
20.5.4	d	50 mm nominal bore.	RM	75		
20.6	2106	Providing and fixing <b>610mmx453mmx6mm thk mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	7		
20.7	2107	Providing and fixing <b>610mmx127mmx6mm thk clear glass</b> with C.P Guard rails and mounted on C.P. brackets etc all complete.	EACH	10		
20.8	2108	Providing and fixing 25 mm diameter <b>stainless steel towel rails</b> (600mm X 25mm) all complete.	EACH	10		
20.9	2109	Providing and fixing 20mm dia <b>chromium plated M.S. pipes</b> wall mounted <b>towel rod</b> with C.P. Brackets etc all complete.	EACH	5		
20.10	2110	Providing and fixing <b>C.P. soap holder</b> mounted with C.P. screws etc all complete.	EACH	10		
20.11	2111	Providing and fixing stainless steel / C.P. <b>liquid soap dispenser</b> . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
20.12	2112	Providing and fixing glazed vitreous wall mounted <b>paper holder</b> with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	18		
20.13	2113	Providing and fixing <b>chromium plated brass shower</b> rose with 15 or 20 mm inlet all complete.	EACH	1		
20.14	2114	Providing & fixing in position <b>P.V.C. water tank of</b> Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.				
20.14.1	a	1000 litres capacity	EACH	4		
20.14.2	b	2000 litres capacity	EACH	1		
20.14.3	Ad	500 litres capacity	EACH	5		
20.15	2115	Providing and fixing approved <b>stainless steel sink with integrated drainboard</b> as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	4		
21.0	<b>2200</b>	SANITARY WORKS (Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.)				
21.1	2201	Supply and fixing <b>glazed vitreous china Wash Basin</b> conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.				
21.1.1	a	White	EACH	12		
21.1.2	b	Colored	EACH	2		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.2	2202	Providing and fixing approved vitreous china <b>laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5)</b> with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	1		
21.3	2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5		
21.4	2204	Providing and fixing <b>colour glazed vitreous china European type water closet conforming to IS:2556</b> with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.				
21.4.1	a	Floor mounted	EACH	5		
21.4.2	b	Wall mounted	EACH	3		
21.5	2205	Providing and fixing <b>colour glazed vitreous indian type Orissa pattern (580x440mm) water closet</b> conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	4		
21.6	2206	Providing and fixing white <b>flat back glazed vitreous china urinals</b> of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	8		
21.7	2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.				
21.7.1	a	75mm dia pipes	RM	475		
21.7.2	b	110mm dia pipes	RM	675		
21.7.3	c	160mm dia pipes	RM	1110		
21.7.4	d	200mm dia pipes	RM	1050		

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**SCH-2- SERVICE PRICE BREAK UP**

<b>SL NO</b>	<b>ST. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (INR)</b>	<b>AMOUNT (INR)</b>
21.8	2208	Providing, laying light duty non pressure <b>NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment terms - a) On receipt of material at site - 50%; b) On completion of erection & fixing - 50%. Excavation, backfilling shall be paid as per BOQ items.				
21.8.1	a	200mm dia	RM	75		
21.8.2	b	300mm dia	RM	150		
21.8.3	c	450mm dia	RM	75		
21.8.4	b	600mm dia	RM	35		
21.8.5	e	900mm dia	RM	25		
21.9	2209	Providing, laying light duty non pressure <b>NP2 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment terms - a) On receipt of material at site - 50%; b) On completion of erection & fixing - 50%. Excavation, backfilling shall be paid as per BOQ items.				
21.9.1	a	150mm dia	RM	300		
21.9.2	b	250mm dia	RM	350		
21.9.3	c	300mm dia	RM	485		
21.9.4	d	500mm dia	RM	725		
21.10	2211	Providing and fixing <b>C.I Manhole heavy duty cover of size 600mmx450mm</b> including frame from reputed manufacture etc. all complete.	EACH	2		
21.11	2212	Providing and fixing <b>circular heavy duty C.I. manhole cover of 600 mm dia</b> with frame etc. all complete.	EACH	2		
21.12	2213	Providing and fixing <b>square mouth S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:				
21.12.1	a	100x100mm P or S Type.	EACH	8		
21.12.2	b	150x100mm P or S Type.	EACH	1		
21.12.3	c	150x150mm P or S Type.	EACH	4		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
21.13	2214	Providing and fixing <b>square mouth S.W Gully trap</b> grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:				
21.13.1	a	100x100mm P or S Type.	EACH	4		
21.13.2	b	150x100mm P or S Type.	EACH	4		
21.13.3	c	150x150mm P or S Type.	EACH	2		
21.14	2215	Providing and fixing <b>C.I. floor traps with C.P jalli</b> all complete.	EACH	5		
21.15	2216	Providing and fixing <b>heavy duty UPVC floor traps with C.P jalli</b> all complete.	EACH	5		
21.16	2217	Providing and installing approved brand single tap <b>water cooler</b> of <b>80 L</b> cooling capacity all complete.	EACH	7		
21.17	2218	Providing and installing approved brand single tap <b>water cooler</b> of <b>150 L</b> cooling capacity all complete.	EACH	1		
21.18	2219	Providing and fixing white vitreous <b>urinal partitions</b> of size 675x325x85mm all complete.	EACH	7		
21.19	A2221	Providing, laying sand CI <b>pipes</b> with lead joints conforming to IS 1729 complete for following.				
21.19.1	a	50mm dia	RM	10		
21.19.2	b	75mm dia	RM	10		
21.19.3	c	100mm dia	RM	10		
21.19.4	d	150mm dia	RM	5		
21.20	A2222	Providing, laying spun CI <b>pipes</b> with conforming to IS 1536 complete for following.				
21.20.1	a	75mm dia	RM	10		
21.20.2	b	100mm dia	RM	10		
21.20.3	c	150mm dia	RM	10		
21.20.4	d	200mm dia	RM	10		
21.20.5	e	250mm dia	RM	10		
21.20.6	f	300mm dia	RM	10		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.0	2300	<b>STRUCTURAL STEEL (Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge. )</b>				
22.1	A2301	Transport, 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, ladders 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, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection) (DFT not less than 25 Microns for each coat), connection design & preparation of fabrication drgs, collection of steel from stores, 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),	MT	10275		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
		assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o 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), return of surplus / waste steel materials to store etc all complete. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (MS PLATE, ISMB, ANGLE, CHANNEL, STAINLESS STEEL PLATE, CHQD PLATE SHALL BE SUPPLIED BY BHEL FREE OF COST AS PER TCC). Payments terms - a). Fabrication - 65%; b) Erection - 25%; c) Alignment - 10%.				
22.2	2302	Extra over ST NO. 2301 for <b>blast cleaning of steel structures</b> 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	NA		
22.3	A2302	Extra over ST NO. A2301 for <b>blast cleaning of steel structures</b> to near white metal surface(Sa 2 1/2 ) before applying the primer all complete.		10275		
22.4	2303	Extra over ST NO. 2301 for providing and application of two coats of <b>primer consisting of chemical resistant epoxy resin</b> and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting etc. all complete.	MT	NA		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.5	2304	Providing and applying two coats of <b>synthetic enamel paint</b> 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	10275		
22.6	2305	Providing and applying two coats of <b>epoxy based colour finish paint</b> 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	NA		
22.7	2306	Providing, laying and clamping of <b>crane rails</b> over the crane girder at all elevations as per IS 3443 including all fixtures, clamps, testings etc. all complete as per drawing and specification.	MT	5		
22.8	2307	Transport, erection and alignment of factory made <b>electroforged galvanised grating units</b> 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	42		
22.9	2308	Transport, erection and alignment of factory made <b>galvanised welded grating units</b> with mild steel 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. fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	19		
22.10	2310	Transport, erection and fixing in position of <b>permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363)</b> and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	Quintal	155		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.11	2311	<b>Transport, erection and fixing in positing of high strength structural bolts</b> (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	377		
22.12	2312	<b>Dismantling of steel structure</b> , lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions ( weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	27		
22.13	2313	Addition to, alterations in and/or modifiction of " <b>Erection Marks</b> " including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:		0		
22.13.1	a	In erected position	MT	30		
22.13.2	b	In fabrication yard	MT	30		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.14	2314	<b>Re-erection of dismantled fabricated structural steel</b> members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	30		
22.15	2316	Supply, fabrication and erection of <b>minimum 4 mm thick stainless steel liner of grade AISI-304</b> ; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. BHEL WILL SUPPLY STAINLESS STEEL PLATE FREE OF COST AS <b>PER SCC</b>	MT	6		
22.16	2317	Providing and fixing in position <b>PTFE type sliding bearings</b> of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of $\pm 50$ mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.				
22.16.1	a	20 Tons	EACH	15		
22.16.2	b	25 Tons	EACH	20		
22.16.3	c	40 Tons	EACH	3		
22.16.4	d	50 Tons	EACH	3		
22.16.5	e	60 Tons	EACH	3		
22.17	2320	Transport, fabrication and fixing painting of <b>GI pipe hand railing (900 mm high)</b> of 32 mm/40 mm dia (Medium Grade) including all labour, painting etc. all complete.	MT	36		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
22.18	2321	Conducting <b>radiography test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	232		
22.19	2322	Conducting <b>ultasonic test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	232		
22.20	2323	Conducting <b>ultasonic test on steel plates</b> as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	SQM	60		
22.21	2324	Conducting <b>magnetic particle test on welds</b> wherever specified including equipments, measuring devices, gauges, test report etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	118		
22.23	2325	Conducting <b>dye penetration test on welds</b> wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete as per written instruction of BHEL engineer. (over and above the work already specified in FQP).	RM	61		
22.24	2326	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other dtructures including all materials, labour, electrodes etc complete (all materials to be supplied by the vendor).	NO	20.0		
23.0	<b>2400</b>	ROAD WORKS (Providing Road Work including necessary material, labour, machinery, transportation etc as per specification, drawing, relevant IRC & IS codes and as directed by the Engineer-in-charge for the following.)				
23.1	2401A	<b>Preparation of sub grade</b> by excavating earth to required depth in all types of soil including ash, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1km etc all complete as per specification.	CUM	12613		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.2	2402	Supplying and <b>filling with selected good earth</b> of approved quality in layers not exceeding <b>300 mm loose thickness</b> using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete.	CUM	11702		
23.3	2403	Providing, stacking & laying <b>granular morrum</b> for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	565		
23.4	2404	Providing & laying <b>water bound macadam sub base course</b> in layers of required thickness with crushed stone aggregates 90 to 40 mm down size, stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	1414		
23.5	2405	Providing & laying <b>water bound macadam base course</b> in layers of required thickness with stone aggregate 63mm to 40mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	464		
23.6	2406	Laying <b>water bound macadam base course</b> with stone aggregate 50mm to 20mm size stone screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	857		
23.7	2408	Providing & applying <b>tack coat</b> of low viscosity liquid bitumen of grade 80/100 conforming to IS 73, 217 or 454 as applicable @ 6 kg/ 10 sqm for bituminous surface including cleaning with compressed air etc all complete.	SQM	5715		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.8	2409	Providing, mixing & laying of <b>dense bituminous macadam (DBM) course</b> of specified thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material including hot mixing, hot laying, rolling etc all complete for the following.				
23.8.1	2409.a	<b>55mm</b> compacted thickness	SQM	5715		
23.9	2410A	Providing, mixing & laying <b>25 mm thick semi dense bituminous concrete(SDBC)</b> in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	5715		
23.10	2411	Providing and applying <b>liquid seal coat</b> comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	5715		
23.11	2412	Supplying and laying 400mmx150mmx350mm deep <b>precast concrete kerb stone</b> of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. Cement will be supplied by BHEL free of cost as per TCC.	RM	1790		
23.12	2413	Providing & laying <b>edge protection</b> on both edges of black topping using brick on edge (bricks with crushing strength of 75 kg/cm <sup>2</sup> ) with full brick width (230 mm) etc all complete.	RM	10		
23.13	2414	Supply and laying 150mm dia R.C.C <b>NP-2 type Hume pipe</b> in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	258		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.14	2417	Providing and laying of plain cement concrete of grade <b>M15</b> using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete. Cement will be supplied by BHEL free of cost as per TCC.	CUM	30		
23.16	2419	Providing & laying dry lean cement <b>concrete of grade M15</b> with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. Cement will be supplied by BHEL free of cost as per TCC.	CUM	5		
23.17		<b>REINFORCEMENT</b>				
23.17.1	2420	Providing and fixing in position <b>MS dowel bar</b> reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. Contractor to supply reinforcement from SAIL /TISCO / RINL or as approved by BHEL/CUSTOMER).	MT	3		
23.18		<b>MISCELLANEOUS</b>				
23.18.1	2423	Providing & installation of <b>bitumen impregnated fibre board</b> of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	40		
23.18.2	2424	Providing and filling in position <b>hot applied bitumen sealing compound (Grade A)</b> of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	40		
23.18.3	2425	Providing and laying <b>debonding strip/tape</b> of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	15		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
23.18.4	2426	Providing & laying <b>75 mm thick precast interlocking concrete pavers</b> of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	150		
23.18.5	2427	Providing and laying <b>50mm thick sand layer</b> below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	525		
24.0	<b>2500</b>	<b>PILING WORKS</b>				
24.1	2501A	<b>Mobilisation of Driven cast in situ RCC piling rigs</b> and all accessories capable of installing 550mm diameter piles in all types of soil, ash to project site and demobilisation of the same after completion of piling works etc all complete. Payments: a) mobilisation and commissioning of rig- 80%, b) demobilisation- 20%)	LS	6		
24.2	2503A	Installation of <b>driven cast-in-situ RCC vertical pile</b> as per IS 2911 (Part 1, Sec. 1) by driving a suitable MS casing pipe (removable) having detachable MS shoe (flat/conical) at the bottom and driving using atleast 5 MT hammer for the length as specified ( <b>length to be measured from pile cut-off level to the bottom of pile</b> )/for the desired set criteria (to be finalised during contract stage) so as to achieve the safe load carrying capacity as mentioned using cement concrete grade M30 conforming to IS:456 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete including providing all materials ( <b>but excluding reinforcement steel for which measurement/payment shall be made separately</b> ), providing plasticser wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap, empty driving etc including providing approved MS shoe(design and drawing of MS shoe shall be submitted by bidder for approval without extra cost to BHEL/Owner) etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following.				
24.2.1	b	Pile with <b>550 mm</b> diameter and <b>18 m</b> length below cut off level	Each	3057		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
24.3	A2504	Extra over ST. No. 2503 for pile length more than the specified length of 18m below cut off level for the following.				
24.3.1	Ac	For 550 mm diameter pile	Rm	3057		
24.4	2505	Rebate on ST.No.2503 for pile length less than the specified length of 18m below cut off level for the following.				
24.4.1	Ac	For 550 mm diameter pile	Rm	4586		
24.5	2507A	Conducting initial load test upto a maximum test load of 2.5 times the safe load capacity on single pile as specified in accordance with IS 2911 Part-4 including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile ( installation of pile shall be paid separately) etc. all complete as per specification, drawing and as directed by engineer in - charge for the following:				
24.5.1	a	<b>For vertical compression test by cyclic load method</b>		0		
24.5.1.1	ii	<b>550 mm diameter pile</b>	Each	3		
24.5.2	b	<b>For lateral load test</b>		0		
24.5.2.1	ii	<b>550 mm diameter pile</b>	Each	3		
24.5.3	c	<b>For tension/uplift test</b>		0		
24.5.3.1	ii	<b>550 mm diameter pile</b>	Each	3		
24.6	2508A	Conducting routine load test 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 <b>excludng the cost of installation of job pile</b> complete as per specification, drawing and as directed by the engineer in-charge for the following.				
24.6.1		<b>For vertical compression test by maintained load method</b>				
24.6.1.1	a	<b>For vertical compression test</b>				
24.6.1.1.1	ii	<b>550 mm diameter pile</b>	Each	31		
24.6.1.2	b	<b>For lateral load test</b>		0		

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
24.6.1.2.1	ii	<b>550 mm diameter pile</b>	Each	31		
24.7	2509A	Carrying out pile integrity test on 550mm diameter pile including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc <b>but excluding the cost of installation of job pile</b> all complete as per specification and as directed by the engineer-in-charge.	Each	3057		
24.8	2511	Driving a 550mm diameter empty MS casing pipe with bottom closed with approved detachable MS shoe down to a maximum depth of 20 m below ground level using at least 5MTweigh drop hammer and furnishing the set calculation to establish a safe load carrying capacity of 115 MT in vertical compression including providing detachable MS shoe etc all complete	Each	4		
25.0	<b>3000</b>	<b>GROUND IMPROVEMNET BY COMPACTION STONE COLUMN</b>				
25.1	3001A	Providing and installing 500 /550 mm diameter and 12 m long driven cast-in-situ compaction stone column with <b>vibro compacting rig</b> by driving of suitable MS casing pipe (removable) and filling inside the casing pipe in layers of 1m using gravel shall be 50mm & down and each layer be well compacted by dynamic compaction method and shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired location including all materials, equipments etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	5866		
25.2	3001B	Providing and installing 500 mm/550mm diameter and 12 m long driven cast-insitu compaction stone column by driving of suitable MS casing pipe (removable) having a detachable M.S.shoe (flat/conical) at the bottom and filling inside the casing pipe in layers of 1m using 1 (sand) : 2 (gravel; gravel shall be 50mm & down) and each layer be well compacted by dynamic compaction method before compaction, lift the casing for about 800mm from bottom and then the backfill shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired location including all materials, equipments etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	5866		

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**SCH-2- SERVICE PRICE BREAK UP**

<b>SL NO</b>	<b>ST. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (INR)</b>	<b>AMOUNT (INR)</b>
25.3	3002	Conducting plate load Test at specified depth using 600mmx600mmx25mm Mild steel plate as per IS-1888 and submission of approved test report etc as per specification. (earth work in excavation and back filling shall be paid extra as per relevant applicable item)	Each	3		
25.4	3003	Conducting Dynamic cone penetration Test at specified location as per IS-4968,Part-1 for a maximum depth up to 15m below ground level submission of approved test report etc as per specification .	Each	15		
25.5	3004	Making 150mm nominal diameter bore hole up to a maximum depth of 15 m below ground level at various locations in all types of soil including laterite using suitable approved method of boring including chiselling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.0m interval alternate to collection of undisturbed soil samples up to 15m depth below ground level ; collection of undisturbed sample (UDS) at every 1.0m interval alternate to conducting standard penetration test up to 15 m depth below ground level; collection of disturbed soil samples and water samples, sealing and packing of samples, observation such as ground water table etc; transportation of all the collected samples to the laboratory and back filling of boreholes with sand on completion of the same etc all complete as per specification and as directed by the engineer-in-charge for depth below ground level as given below .	Rm	45		
25.6	3005	Conducting laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc all complete as per specification.				
25.6.1		a)Bulk density and moisture content	Each	8		
25.6.2		b) Relative Density	Each	8		
26.0		<b>LEVELLING &amp; GRADING</b>				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
26.1	2	<b>Earth work in stripping</b> of top soil upto a minimum <b>depth of 0.30m</b> below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a <b>lead upto 1km</b> etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	50000		
26.2	3	Earth work in excavation upto any <b>depth below ground level in all types of soil</b> including moorum, pond ash/fly ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a <b>lead upto 1km</b> , spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	100000		
26.3	9	<b>Earth work in filling</b> upto any depth below ground level for grading to proper grade and level in layers <b>not exceeding 300mm loose thickness</b> with selected approved quality of pond ash/fly ash/soil from compulsorily <b>excavated soil available within a lead upto 1km</b> and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.				
26.3.1	a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	100000		
27.0		MISCELLANEOUS				

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## SCH-2- SERVICE PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
27.1	MS-1	Pumping out water from CW Pit, Feed Pool, Cooling Tower Basin, Water logged areas etc. as an when required to facilitate erection & commissioning including provision of delevary pipe upto 150m etc. all complete as per site condition and instruction of engineer.	HP-Hour	1000		
27.2	MS-2	Providing service for manpower for cleaning and house keeping with all equipments, T & P etc. from various floor of power house and other buildings, boiler, ESP, Mill area and stacking at designated place.	Man HOUR	40000		
27.3	MS-3	Removal and disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as directed by BHEL Engineer.				
27.3.1		a) Steel	MT	100		
27.3.2		b) Wood / Cable scrap	CUM	650		
27.3.3		c) Debris & Other waste materials.	CUM	1000		
		<b>TOTAL</b>				
28.0	2800	Quote % above or % below or at par for items not covered as above of this schedule. The rate shall be derived from Delhi schedule of rate 2007.				
28.1	a	Rate of complete item	%			
28.2	b	Rate of supply of material at site only	%			
28.3	c	Rate for execution complete excluding supply of materials.	%			

VOLUME-III  
PRICE SCHEDULE, REV-1  
(PACKAGE-B)

PKG-B: CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS INCLUDING PILING AND GROUND IMPROVEMENT FOR MAIN POWER HOUSE, TG FOUNDATION, TRANSFORMER YARD, MILL AND BUNKER BAY FOUNDATION AND SUPER STRUCTURE , BOILER FOUNDATIONS, ESP FOUNDATIONS, BFP DECK, FOUNDATIONS OF PA FAN, FD FAN, SA FAN & ID FAN, TRANSFORMER YARD, ALL CABLE/PIPE RACKS- TRENCHES-CW PIPE CORRIDOR- ROAD & DRAINS WITHIN POWER BLOCK-2, ESP CONTROL ROOM, AIR COMPRESSOR HOUSE, BOILER AREA PAVING, ACW PUMP HOUSE, LUBE OIL ROOM, ALL MISCELLANEOUS STRUCTURE AND FOUNDATIONS WITHIN POWER BLOCK-2 OF 1X250 MW UNIT # 9 FOR 2X250 MW UNITS AT BARAUNI TPP, BEGUSARAI, BIHAR.

TENDER NO - PSER:SCT:BRM-C1273:11

SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
1.0	704 S	Supply and delivery at site mild steel foundation bolt of various diameter conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	21.0		

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## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
2.0	1501 S	Designing and supply permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hothout extra cost to BHEL/Owner) etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.				
2.1	a	Span Upto 1800mm	SQM	4254		
2.2	b	Span Exceeding 1800mm and upto 2500 mm	SQM	3200		

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## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
3.0	1504 S	Designing and supply External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	3902		

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## SCH-3- SUPPLY PRICE BREAK UP

SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
4.0	1505 S	Design and supply Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	2650		
5.0	1707S	Supply GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
5.1	b	150 mm Dia	RM	3425		
7.0	2307 S	Supplying factory made <b>electroforged galvanised grating units</b> 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 etc. all complete.	MT	42		

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SCH-3- SUPPLY PRICE BREAK UP						
SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
8.0	2308 S	Supplying factory made <b>galvanised welded grating units</b> with mild steel 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. , fixing clamps, fittings, fixtures, all taxes, duties, packing etc. all complete.	MT	19		
9.0	2310 S	Supply <b>permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363)</b> and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc.	Quintal	155		
10.0	2311 S	<b>Supply high strength structural bolts</b> (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc.	Quintal	377		
11.0	2320 S	Supply <b>GI pipe for hand railing (900 mm high)</b> of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, etc.	MT	36.0		
12	2742	Providing service for manpower, for running and maintenance of BOREWELL pump set without supply of major equipment / parts.	Man-month	32.0		

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SCH-3- SUPPLY PRICE BREAK UP						
SL NO	ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE (INR)	AMOUNT (INR)
13.0	2743	General purpose crawler crane (150T) with lattice boom & minimum 10M length jib suitable for structural erection. (crane should be available at site for continuous and erection work including sundays and holidays without any additional cost).				
13.1	2743A	Mobilisation and de-mobilisation charge. Payments: a) 70% on mobilisation, b) Balance 30% on demobilisation.	LOT	1.0		
13.2	2743B	Monthly lumpsum crane hire charge including fuel, opertor and all other charges.	CRANE-MONTH	8.0		
14	2744.0	Heavy lift crawler crane (250T) with lattice boom & minimum 10/12M length jib suitable for erection of millbuilding and bunker struture. (crane should be available at site for continuous erection work including sundays and holidays without any additional cost).				
14.1	2744A	Mobilisation and de-mobilisation charge. Payments: a) 70% on mobilisation, b) Balance 30% on demobilisation.	LOT	1.0		
14.2	2744B	Monthly lumpsum crane hire charge including fuel, opertor and all other charges.	CRANE-MONTH	12.0		
<b>TOTAL</b>						