

CORRIGENDUM -2 TO TENDR SPECIFICATION BHEL PSSR SCT 1547 NNTPS CIVIL WORKS,DT:10/4/2014

Some of the bidders sought clarifications vide letters or in Pre Bid discussion held on 27/3/2014 at BHEL PSSR in NNTPS Civil Works and BHEL's clarifications are furnished below for information

Sln.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
1	211 b, 1007 & 1209	Providing and encasing of structural steel member with concrete ----- Encased member shall be wrapped with -----chicken wire mesh ----- (Payment of welded wire mesh, chicken wire mesh shall be made separately)	As per description of these items, payment of chicken wire mesh shall be made separately but there is no specific item for chicken wire mesh. Kindly clarify the item under which the payment will be made.	Payment of welded wire mesh, chicken wire mesh will be as per item 1010.
2	401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements ----- (steel in the scope of contractor)	As per description furnished in pkg. A, Steel reinforcement will be in the scope of contractor but scope of supply has not been mentioned in Pkg.B. Kindly clarify.	Since only TMT reinforcement steel FE500 is supplied by BHEL free the supply scope of Mild steel is in the scope of contractor.
3	402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 ----- Engineer. (TMT will be provided by BHEL)	As per description of Pkg. A, TMT will be provided by BHEL. Please clarify about Pkg.B.	Since TMT reinforcement steel FE500 is supplied by BHEL free the supply scope will not be in the contractor scope
4	1205	12 mm thk. Plaster in wall with a paste of neat cement @1kg/sqm-----	Proportion of Cement mortar is missing in the item. Please furnish the same.	The Cement mortar will be 1:4 (1 cement: 4 sand)
5	1603	Providing and fixing ---false ceiling -----M.S. channel grid with minimum ISMC100 shall also be ----- 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)	ST No.2301 does not exist in BOQ Kindly check	The Item description is revised. Please refer the Rate Schedule in the Revised Price Bid
6	1501 A	Designing, providing and fixing permanently color coated alvanized MS troughed metal sheet decking plate of approved colour and conforming to class 3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification-----	Since Structural Steel work is not there in the present scope of work. We understand that providing & fixing of purlins is in the scope of structural contractor. Please clarify.	Yes, Providing and fixing of purlins is under the scope of structural agency
7	2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm----- (Structural post shall be paid separately under item 2007)	Item No. 2007 does not exist in the BOQ. Kindly verify.	Item 2007 is available in Heading 2000 "Fencing and gates" in TG & Auxiliaries
8	2007-2010	Supply and fixing of hot dip galvanised mild steel posts for fencing, MS gates etc-----	As per TCC clause 1.3.6, Structural Steel shall be supplied by M/s BHEL on free of cost basis. But as per mother item i.e. 2000 of Fencing & Gate, all materials are in Contractor's scope. Kindly clarify.	The structural steel involved in this item is in Contractor's scope.

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9	51	CONSTRUCTION SCHEDULE FOR SG and TG PACKAGE ---	From given construction Schedule, it is understood that Construction of TG Foundation & Deck is not there in the present scope of work. Your confirmation is requested.	Construction of TG Foundation & Deck is in the present scope in TG & Auxiliaries
10	Technical	Minimum Cement Content	We understand that minimum Cement content for Design Mix Concrete shall be as per relevant IS Codes. Please confirm.	Details regarding Design mix concrete will be as per technical specification
11	152	Cement -OPC 43 grade Cement of reputed make conforming to relevant codes, shall be	We request you to kindly furnish the list of approved makes to enable us to explore the availability.	List of approved vendors of NLC is already available with the tender.
		used for all Concreting works and the certificate of manufacturer shall be furnished with each batch.	Whether PPC or PSC can be used for other works like Masonry, Plaster & finishing.	Use of type of cement as per the Technical specification.
12	510, Unit 1 : Part B : TG & Aux Building (Sr. No. 510)	Providing and applying water proofing with blown bitumen bonding material conforming to IS:702 of 65/25 grade in Basements, ducts, pits, tunnels etc below the ground level on the concrete surfaces exposed to soil / ash and up to 150 mm above ground level on outside of walls and top of RCC slab including preparation of surface, brick lining single brick thick with 1:4 cement mortar etc. all complete with following number of layers of bitumen felts:	The items shows only the description without any unit & Qty. We request you to provide the Qty & Unit for the same. Please clarify. (Item Highlighted in yellow is enclosed herewith)	Item deleted. Please refer the Rate Schedule in the Revised Price Bid
13	2608	Supply & fixing Netlon jali/ PVT net in the well dug for rain water	The unit for the item shown in Part A is "SQM" & in Part B is "Cum". Please clarify us regarding the Unit of measurement for the said item. (Item Highlighted in yellow is enclosed herewith)	The unit of this item to be read as SQM. Please refer the Rate Schedule in the Revised Price Bid
14	1420, Unit 1 : Part B : TG & Aux Building (Sr. No. A1420 (a))	Providing and laying Heavy Duty vitrified Ceramic Tiles of 10 mm thick of reputed manufacturer of approved finish shade, brand and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.	This item is getting repeated twice. Please clarify. (Item Highlighted in yellow is enclosed herewith)	Item prevails with change in the qty. Please refer the Rate Schedule in the Revised Price Bid

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
15	A1420	Providing and laying Heavy Duty vitrified Ceramic Tiles of size 600x600mm(approved size) and 10mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 40mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar all complete.	This item is getting repeted twice. Please clarify. (Item Highlighted in yellow is enclosed herewith)	Item prevails with change in the qty.Please refer the Rate Schedule in the Revised Price Bid
16	Drawings	Over all plan provided.	Please provide Section & Elevation Drawings to under stand the neture of work.	Drawing will be issued during the course of contract
17	BOQ	Soft copy of BOQ	Please provide BOQ in excel format	Use the price bid as provided with the tender
18	TCC-Clause 1.4.1-Page no 47	T&PS TO BE DEPLOYED BY CONTRACTOR for each package 1.4.2 The contractor is required to arrange the following minimum Major T&Ps per package: i) Batching Plant : 2 Nos j) Transit mixers : 10 Nos	1.As per the BOQ Quantity in each package , One Batching Plant with 4 Nos of Transit mixers is sufficient to complete the job with in the time line specified , Please revise your minimum requirement accordingly. Also the Minimum time perioed for mobilizing & Commencing of Batching plant is 45 days from LOI, Please confirm. 2.Total scope of concrete in each package is approx. 62,000 Cum and project duration is 30 months. In view of scope, per month pouring quantity in peak months will not exceed to 3500-4000 cum which can easily be feed by a Batching Plant of capacity 30 cum/Hour & 4 Transit mixers of 6 cum capacity. Deployment of excessive T &Ps will cause only idleness of T&Ps & considerable cost to the project. However, for emergency purpose, provision of Gamezen Mixer will be an economical option. Request to verify the requirement & advice.	Tender condition prevails
19	Water	Free Issue by BHEL	We have presumed the quality of water fit for construction purpose, please confirm.	Yes Fit for construction purpose
20	Item no 212 a	Screed 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.	Please provide the thickness of screed concrete	Bidder to quote as per BOQ

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
21	Item no 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.	Please clarify the followings 1) The reinforcement shall be measured & paid Under relavent items in the BOQ , Please confirm. 2) The rendering shall be measured & paid separatly in Sqm. 3) Please provide location & level details for pre cast concrete works.	Only reinforcement shall be measured under relevent item.Bidder to quote as per BOQ, The item is inclusive of rendering and no separate payment for rendering will be made.
22	Item no 217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	Please provide unit of measurement in " kg "	Bidder to quote as per BOQ
23	Item no 218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	Please provide Max depth of core cutting work.	Bidder to quote as per BOQ
24	Item no 302	Fairface form work with good quality water proof ply wood of required thickness and smooth surface 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.	Please provide section drawings or elevation heights to be involved in form work.	Bidder to quote as per BOQ
25	Item no 502	Providing and laying in-situ light weight foam concrete insulation 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.	a) Please provide the density of foam concrete (kg / m3) b) Please confirm, the avg thickness 75mm thick is including 15mm thick cement morder . C) Please provide expansion joint & Floor joint cutting & sealeant filling BOQ separatly.	(1) Density of foam concrete shall be maximum 0.5 t/m3 (2) 75 mm foam concrete is excluding the mortar thickness. (3) The item includes treatment of expansion joint in foam concrete and it is not to be paid separately. Bidder to quote accordingly

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
26	Item no 704	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	Please confirm whether foundation bolt shall be supplied by BHEL free of cost or not?	Supply of Foundation bolt is in bidder scope. Bidder to quote as per BOQ
27	Item no 801	Providing & grouting with cement slurry mix of approved ratio using pressure pump 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.	Please provide quantity & unit of measurement in CUM .	The Item description is revised. Please refer the Rate Schedule in the Revised Price Bid
28	Item no 903 B	Providing and fixing solid core factory made wooden flush doors (single or double shutter) conforming to IS:2202, part-I, decorative type, core of block board construction, with frame of hard wood (Type and quality of hard wood approved by BHEL/NLC/LII), and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters, 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 draw	We have presumed the thickness of flush door as 32mm , Please confirm.	Thickness of door shutter shall be 35 mm.
29	Item no 905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	We have presumed the thickness of steel door as 38mm , Please confirm.	38mm minimum thickness can be adopted.

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
30	Item no 1208	Providing drip coarse 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.	Please provide the width of drip coarse per RMT.	Bidder to quote as per BOQ
31	Item no 1311	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of 0.5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	Please provide vendor / manufacture for this item.	Bidder to quote as per BOQ. NLC approved vendor list enclosed in the tender
32	Item no 1801 & A1801 Unit 2 Part B : TG & Aux Building (Sr. No. A1801 & 1802)	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.	Same BOQ specification given item no 1801 & A1801 , Please clarify. The items shows Qty only. Please provide the unit of measurement of said items	The Item description is revised. Please refer the Rate Schedule in the Revised Price Bid
33	TCC-Clause 1.4.1-Page no 47	We hereby attached Make List with highlighting (in green) the vendors which are not available currently in the market , Please clarify.	Please clarify	With the approved Vendor list bidder to quote as per BOQ
34	Technical PQR	The bidder should have executed Minimum Concrete quantity of 16250 CUM within a period of one year in a single contract in a Thermal Power station in civil and Architectural works. The quantum	The bidder should have executed Minimum Concrete quantity of 16250 CUM within a period of one year in a single contract in a Power/Industrial in civil and Architectural works. The quantum	Tender condition prevails
35	2.1.1.1 of TCC - Base date for PVC	PVC clause in 2.17 in GCC "Base date shall be first of the consecutive first month to the month in which contract period completes"	We request you to consider "Base date shall be calendar month of the latest date of submission of Tender" as like previous BHEL Contracts	Clause 2.1.1.4 in VOLUME-IA PART – II CHAPTER 1 under SLNO:2 in TCC and Clause 2.17.9 (iv) in GCC are deleted:

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36	2.1.2.1 of TCC - ORC	ORC clause 2.12 in the GCC is not applicable to this contract.	We request you to consider ORC as per GCC 2.12	1.Clause 2.1.2 "OVERRUN COMPENSATION (ORC)" in VOLUME-IA PART – II CHAPTER 1 in TCC is deleted. 2.<u>OVERRUN COMPENSATION</u> in clause 2.12 in GCC (ORC published in General Conditions of Contract (Volume I Book-II) to be read as under. The clause 2.12.3 in OVERRUN COMPENSATION in GCC (ORC published in General Conditions of Contract (Volume I Book-II) is revised as under and all other clauses in 2.12 are applicable to this contract. 3.<u>Revised clause of 2.12.3:</u> "The amount of increase payable per month due to rate revisions is subject to a minimum of Rs 1,00,000/- (One lakh) per month and a maximum of Rs 5,00,000/- (Five Lakhs) per month".
37	1.11.1.1 of TCC - Labour Cess	BOCW Act & BOCW Welfare Cess Act	Towards contribution of fund for the benefit of manual workers employed in the construction works an amount equivalent to 0.30% of estimate amount will be paid by the Employer direct to the Labour Welfare Board as per G.O. Ms. No. 80/Labour and Employment Department/Dated 05.06.1997, G.O.Ms. No. 95/Labour and Employment Department/Dated 02.07.1997 and G.O. Ms. No. 283/MA & WS (WS.4) Dept.,Dated 11.11.2010. Kindly conform if it is contractor Scope	Tender condition prevails
38	2.20 of GCC Page 29 of 32	FORCE MAJEURE	kindly consider Labour Strike not attributable contractor as Force Majeure with Compensation	Tender condition prevails
39	1.3.12 of TCC - Bid Drawings	Drawings	1.Kindly provide available foundation, Superstructure & Architectural Drawing to provide competitive offer 2.Please provide us the key plan indicating the distances of various locations (viz. BHEL Steel yard & site, Site and laydown area / Batching Plant etc.)	1.Construction drgs will be issued during execution of work site. 2.Plot plan drg attached for information

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40	General	Labour Union Problem	Kindly confirm whether Labour union problem envisage in the plant premises.	Refer and submit form F-04 for knowledge about site conditions
41	General	Idle of resources	We request to approve that, If any idle of resources, reasons not attributable to contractor, shall be paid as per CPWD rates,	Tender condition prevails
42	General	New / additional items	We understand that the Rate shall be arrived for new items, using CPWD analysis with market rate.	Tender condition prevails
43	1.3.3 of TCC - Open Space for Batching Plant	Open space for building of temporary office shed and contractor's stores shed(s) will be provided free of charges.	We understand that the land for batching Plant will be provided free of cost. Kindly confirm	Will be provided
44	Vol II Price Bid 200 - Concrete work	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	We understand that the bidder can use M-Sand as per Tamilnadu Govt. G.O. Kindly Confirm	Tender condition prevails
45	Vol II Price Bid 104 - Rock blasting	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting)	We understand that the blasting (but excluding controlled blasting) is allowed. The required permissions will be obtained by BHEL	Bidder to quote as per BOQ
46	General	Security Restrictions	kindly brief us what will be the security restrictions inside the site, procedures for issuing gate passes etc. Whether CISF will be involved in these procedures. Please provide the details	Refer and submit form F-04 for knowledge about site conditions

Sln.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
47	Mobilization Advance ,Vokume 1A- Part 1- Cl.1.7.2	1)Interest bearing advance for Mobilization, limited to 5% of the contract value will be paid against submission of bank guarantee of at least 110% of the advance valid for the contract period, which will be recovered from the first running bill onwards. The advance for mobilization shall be paid as under. b)2% after receipt of initial Security Deposit as per relevant clauses in the GCC and approval of bar chart for execution along with unqualified acceptance of detailed letter of intent. 3)3% at the end of first month from date of fax LOI on completion of siteMobilization of Machinery & T&P as per mobilization schedule in the tender and on certification by site in-charge for compliance. 4 Payment and recovery of the advance will be as per clause 2.13 of GCC. Option of availing the interest bearing mobilization advance is left with the bidder.	1. We shall be paid interest-free mobilization Advance @ 10% of the contract value against bank guarantee for equivalent value in a Single installment. 2. We request you to kindly provide an interest free Mobilization Advance @ 10% of the contract value against BG of equivalent amount. 3.We request to release the mobilisation advance as Interest free. If not please provide us the rate of Interest for the same 4.We request you amend the value as 10% of the contract value will. And recovery of the same should statrt after 4 Running Bill.	Tender condition prevails
48	Interim Payment,GCC-Cl.2.22	1.7.3.1 Interim bills in the form of monthly running bills prepared by the contractor shall be based on the quantities executed and measured. 1.7.3.2 All interim payments shall be limited to 90% of the item rate 1.7.3.3 5% of the item rate shall be released after submission of the quality check formats / documents as per the quality plan for the quantum of work billed and duly certified by engineer. 1.7.3.4 All admissible deductions shall be made from the above 90% value. 1.7.3.5 BHEL Site Engineer, at discretion, may operate the part rate of the items where supply and installation are involved, on receipt of the materials at site.	We shall be paid 95% of the item rate amount in each RA Bill.However We shall submit bank guarantee @ 5% of the total contract price towards retention money valid up to the contract period at the time of 1st RA Bill submission and no cash to be deducted from our RA Bill.	Refer the chapter -VII for terms of payment & retention amount in TCC which will prevail
49	Retention Money GCC-Cl.2.22	Retention Amount shall be 5% of executed contract value and shall be recovered at the rate of 5% from each Running Bill admitted, including PVC Bills.2.22.2	We shall be paid 95% of the item rate amount in each RA Bill.However We shall submit bank guarantee @ 5% of the total contract price towards retention money valid up to the contract period at the time of 1st RA Bill submission and no cash to be deducted from our RA Bill.	Refer the chapter -VII for terms of payment & retention amount in TCC which will prevail
50	Security Deposite GCC-Cl.1.11	Security Deposit shall be refunded/Bank Guarantee(s) released to the Contractor along with the „Final Bill“ after deducting all expenses / other amounts due to BHEL under the contract / other contracts entered into with them by BHEL.	We request you to release the Security Deposit BG after physical completion work.	Tender condition prevails

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
51	OVERRUN COMPENSA TION Page no 23/32	1)Over Run Compensation (ORC) is payable for works done during the extension period, by way of rate revisions for periods beyond original contract period subject to the following terms and conditions. 2)Rates shall be increased by 10% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 10% over the previous twelve months, and similarly for each subsequent twelve months extension. 3)The amount of increase payable per month due to rate revisions is subject to a minimum of Rs 1,00,000/- per month and a maximum of Rs 10,00,000/- per month. 4) Should there be any „Time extension“ for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned.	We request you to omit the maximum limit of Over Run Compensation as mentioned in point no 3.	Clarified in slno 36 above
52	Liquidity Damages Vol-I-Book-II- Cl.2.7.9	BHEL shall have the right to impose Liquidated Damage/Penalty at the rate of 0. 5% of the contract value, per week of delay or part thereof subject to a maximum of 10% of the CV	1.We request LD 0.25% per week maximum up to 5% of CV, please confirm 2.We request you to amend the maximum limit to 5% of the contract value for the project, as most of the PSUs are considering the ceiling limit as 5%.	Tender condition prevails
53	Idle ChargesVol-I- Book-II- Cl.2.8.19	Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor"s labour and Tools & Plants being rendered idle due to any reason at any time.	We request you to provide idle charges due to stoppage of work caused for the reasons not attributed to contractor. (For Idel Charges towards Labour , Infra strcuture , Staff and Tools & Plants)	Tender condition prevails
54	Price Variation Compensati on Vol-I- Book-II- Cl.2.17	The total amount of PVC shall not exceed 20% of the cumulatively executed contract value. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary / Additional Items and Extra works.	PVC shall be paid without any Limit , we request you to remove the upper limit for PVC as menntioned in clause 2.17.9 (iv).	Clarified in slno 35 above
55	GCC Page No.17. Cl. No.2.6.11 Page No.17. Cl. No.2.6.11	The Final Bill shall be prepared and paid within a reasonable time after completion of the work-----	Kindly let us know the tentative time required for preparation & payment of final bill.	Within a reasonable time as in the tender if the bidder submits the final bill by complying with all the tender conditions.

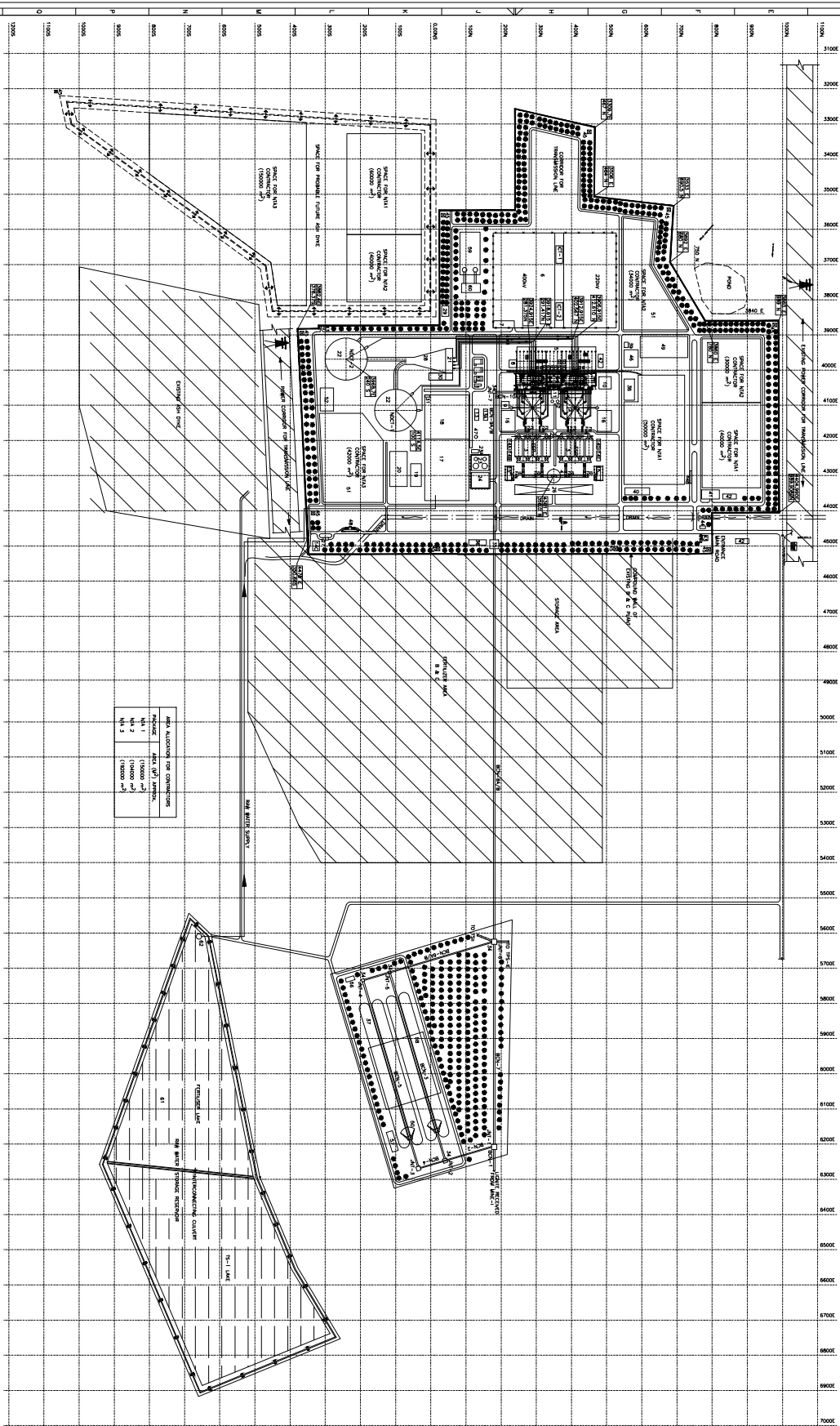
Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
56	TCC, Cl. 1.3.6	In case of non-availability of water, the contractor shall make his own arrangement.	Kindly confirm whether contractor should make parallel arrangement of water by digging bore well at site to cater the requirement in case of non-availability of water supplied by client free of cost.	As per the tender clause 1.3.5 in TCC
57	TCC, Cl. 1.3.6	Material Supply /providing cement, aggregate, sand, Hand Rail, Stainless Steel, Roof sheets, Rails, MS rods, MS flats and all other materials required for the work are in the scope of the contractor--However, BHEL shall provide only reinforcement steel (TMT) and structural steel free of cost-----	Supply of Reinforcement & Structural Steel by M/s BHEL has not been mentioned specifically in few respective BOQ items. (For details, pls. refer to Sl. No. 3 & 4 of Technical query below). Please amend the description accordingly.	Please refer the Rate Schedule in the Revised Price Bid
58	General	Land for Contractor's Infrastructures-----	1.We request you to kindly provide sufficient land on free of cost basis for Contractor's infrastructures i.e. Site Office, Stores, Cement Godowns, Material Yards, Batching Plant & Labour huts within plant premises for safety & smooth operation of the work. 2.We request you to provide the land for Labour colony at free of cost.	As per the tender clause 1.3.3 in TCC
59	Volume –II, Price Bid, Page-2	One set of Tender documents consisting of 1) TECHNOCOMMERCIAL BID – 2 copies 2) PRICE BID – 2 copies	Please refer to the statement written on the 2nd page of the Price Bid. Same statement has been furnished on price bid of package –A & B. We understand that 2 copies are for two packages & tender will be submitted in original copy only.	Refer clause 5 & 6 in NIT
60	Technical PQR	we are interested in submitting our offer for the subject work.We gonw through Prequalification criteria in the NIT.Vide Annexure III 1.2b it is mentioned " The bidder should have executed one STG foundation of atleast 190MW unit capacity".We fulfil all the requirements of PQR except for this.We have,however,carriedout several STG foundations upto 25MW.	In view of this,we request you to clarify and confirm wether you can waive the requirements of execution of one STG foundation of 190MW.	Relaxation in PQR is not possible.PQR in the Tender will prevail.
61	Commercial	ESI	Please clarify whether ESI is applicable for this contract(since as a green development it is not applicable).Please confirm	Refer and submit form F-04 for knowledge about site conditions
62	Sr. No. 2406 (Pkg. A & Pkg. B)	:"Laying water bound macadam base course 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."	As per description of the item, rate for only laying has been asked by the bidders but there is no separate item for supply of material is included in the BOQ.	Please refer the Rate Schedule in the Revised Price Bid

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply															
63	TCC/VOL-IA PART – I/CH- VII & I/CL.1.3.6, 1.9.1 & 1.9.3.4	Cement will be in Contrctor's scope & Reinforcement & Structural steel will be issued free of cost by BHEL	We presume that Cment is in Contractor's scope & Steel (Reinforcement & Structural) will be issued free of cost to the contractor. Please confirm.	Refer the clause 1.3.6 in chapter -III in TCC for Material supply which will prevail															
64	TCC/VOL-IA PART – I/ CH- I/CL.1.3.5	Construction Water	We presume that Construction Water will be provided by BHEL at single point at free of cost within site premises.	Refer the clause 1.3.5 in chapter -III in TCC for water supply which will prevail															
65	TCC/VOL-IA PART – I/ CH- I/CL.1.3.4	Construction Power	We presume that Construction Power will be provided by BHEL at single point at free of cost within site premises.	Refer the clause 1.3.4 in chapter -III in TCC for Electricity which will prevail															
66	TCC/VOL-IA PART – I/ CH-9,1.9.3	Material Accounting	Addendum to clause 1.9.3	All the steel thus issued shall be properly accounted for as per the following Permissible wastage over the theoretical quantity / consumption incorporated in the Works. <table><thead><tr><th>Item</th><th>Area</th><th>Permissible variation</th></tr></thead><tbody><tr><td rowspan="3">(a) Reinforcement</td><td>For all works except piling</td><td></td></tr><tr><td>Accountable (visible)</td><td>-3 %</td></tr><tr><td>Un accountable (invisible)</td><td>-2%</td></tr><tr><td rowspan="2">(b) Structural steel</td><td>Accountable (visible)</td><td>-4 %</td></tr><tr><td>Un accountable (invisible)</td><td>-1 %</td></tr></tbody></table>	Item	Area	Permissible variation	(a) Reinforcement	For all works except piling		Accountable (visible)	-3 %	Un accountable (invisible)	-2%	(b) Structural steel	Accountable (visible)	-4 %	Un accountable (invisible)	-1 %
Item	Area	Permissible variation																	
(a) Reinforcement	For all works except piling																		
	Accountable (visible)	-3 %																	
	Un accountable (invisible)	-2%																	
(b) Structural steel	Accountable (visible)	-4 %																	
	Un accountable (invisible)	-1 %																	

Slno.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
67	TCC/VOL-IA PART – I/ CH-3,1.3.13 added	Field Laboratory.	Clause 1.3.13 added	1. The Bidder shall establish and maintain a field laboratory on the site and this laboratory shall be available at all time for testing. 2. The laboratory must have qualified technicians to carry out all tests and must be adequately equipped to ensure that all necessary testing work can be carried out in compliance with the standards. 3. Field and laboratory testing procedures for materials follow Indian Standard Specifications with necessary equipment's like. 3.1 Vicat Apparatus 3.2 Lechatelier's test Apparatus/ Autoclave 3.3 Mould (cement) (70.7x70.7x70.7mm) 3.4 Cement Mortar Mould Vibrator 3.5 Concrete cube mould (150x150x150)mm 3.6 Compressive strength Testing machine 3.7 Concrete slump cone 3.8 Coarse aggregate sieves 3.9 Fine aggregate sieves 3.10 Sieve shaker 3.11 Aggregate impact test machine 3.12 Procter density set 13.13 Sand replacement set
68	NIT	Annexure- 3 in the Enclosures	Indicated as not applicable	Annexure-3 is applicable to this tender
Note				
1 Please quote in the Price Bid Revision 01 of both packages (Revised Rate Schedules in Package-A&B). Package-A and Package-B Price bids shall be submitted in separate sealed covers as per NIT clause 5& 6				

Sln.	Item No.	BOQ item Description	Bidder's Clarification	BHEL Reply
	2	All other conditions remain unchanged		
	3	This corrigendum-2 will form part of the tender hence bidders shall submit a duly signed corrigendum along with their offer		

GM/HR&SCT



AREA ALLOCATION FOR CONTAINERS	
PACKAGE	AREA (m ²) APPROX.
NIA 1	(150000 m ²)
NIA 2	(104000 m ²)
NIA 3	(120000 m ²)

NO	DESCRIPTION	UNIT
1	1. BATTERY	1000
2	2. START BATTERY	1000
3	3. COIL	1000
4	4. CONDENSER	1000
5	5. SPARK PLUG	1000
6	6. SPARK PLUG WIRE	1000
7	7. DISTRIBUTOR	1000
8	8. CONTACTS	1000
9	9. CONTACTS ADJUSTING SCREW	1000
10	10. CONTACTS SPRING	1000
11	11. ARMATURE	1000
12	12. ARMATURE COIL	1000
13	13. ARMATURE COIL WIRE	1000
14	14. ARMATURE COIL WIRE SOLDER	1000
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NOTES:
1. THE NUMBER OF SUBJECTS & WILLS SHOWN IS ONLY APPROXIMATE

LEGEND :

██████████	coloured film
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NEVELL LIGNITE CORPORATION LTD.

LAHMEYER INTERNATIONAL
LAHMEYER INTERNATIONAL SPECIALTY, LTD.
CONCRETE AND STRUCTURAL REPAIRS, INC.

PROJECT NO. : REQUEST - MINUTEMAN CONSULTING LTD.

SEARCHED	INDEXED	DATE
FILED BY	SER.	15-06-11

24800
 MY NEWELL HEW THERMA POWER STATION
 CHELSEA DISTRICT, TAMMAMU.

DESIGNED BY	AK	15/04/11	DRAWING TITLE :
CHECKED BY	DS	15/04/11	
PILOT PLAN			

APPROVED BY	FOR	15.06.11		
DATE				

1	20	100-01100-0-410113029-47	DATE RECEIVED	DATE	DATE
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On the other hand, the fact that the *in vitro* and *in vivo* results are in good agreement suggests that the *in vitro* model is a good approximation of the *in vivo* situation.

Percent of total respondents in a survey - means in sample

gaining but not be considered as such without the written permission from the Patent Commissioner and the U.S. Patent Office.

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1547

FOR

Construction of Civil and Architectural works for Package-A&B (Unit-1&2) of 2 X 500 MW Boiler and Steam Turbo Generator Package

at

Neyveli New Thermal Power Station, Neyveli, Cuddalur Dist,
TamilNadu

VOLUME –II PRICE BID PACKAGE-A (Revision 01)



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

Tender Specification No. BHEL: PSSR: SCT: 1547

for

Construction of Civil and Architectural works for Package-A&B (Unit-1&2) of 2 X 500 MW Boiler and Steam Turbo Generator Package at Neyveli New Thermal Power Station, Neyveli, Cuddalur Dist, TamilNadu.

One set of Tender documents consisting of

- 1) TECHNOCOMMERCIAL BID - 2 copies
- 2) PRICE BID - 2 copies

Book Sl no

Issued to
M/s

Refer NIT for Last date of submission

Please note this tender document is not transferable

For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

GENERAL MANAGER / HR and SCT

Place: Chennai -35
Date:

PRICE BID

PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding BHEL's Customer specifications and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- 2) The work shall be carried out as per construction drawings (which will issued progressively during the execution), specifications, the description of the items in this schedule and/or Engineer's instructions., The layout, sizes and details of the building, structures and foundations may vary at a large extent during actual construction.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour, materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services , temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references , pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 8) Incase of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.
- 9) Refer the relevant clauses in the GCC for payment of additional items and Quantity variation.
- 10) Refer Relevant Clause in NIT for order of precedence.

RATE SCHEDULE FOR PACKAGE-A BHEL PSSR SCT 1547, NNTPS 2 x 500 MW UNIT 1

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
100	EARTH WORK Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering, installation and maintenance of peizometers to check ground water lowering efft in unfavourable positions etc. as per specification, drawing and as directed by engineer- in-charge for the following.								
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.								
a	Depth from ground level not exceeding 2 m	CUM	64000	24347	88347				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	40110	10049	50159				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	23845	6650	30495				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	8000	528	8528				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	0	139	139				
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
a	Depth from ground level but not exceeding 2 m	CUM	500	0	500				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	1500	9538	11038				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1000	6882	7882				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	250	214	464				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
e	Depth exceeding 8 m but not exceeding 10 m	CUM	0	139	139				
104	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, getting insurance from approved insurance agency against all claims with respect to damage to property or injury to public etc. due to blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
a	Depth from ground level but not exceeding 2 m	CUM	110	0	110				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	500	0	500				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	500	0	500				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	250	0	250				
105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
a	Depth from ground level but not exceeding 2 m	CUM	100	0	100				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	200	0	200				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	500	0	500				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	200	0	200				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
106	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, deawtering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
b	Depth exceeding 2 m but not exceeding 4 m	CUM	65	0	65				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	350	0	350				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	210	0	210				
A107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains, under grade slab etc to proper grade and level in layers not exceeding 150 mm thickness using/with selected materials from compulsorily excavated soil 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.								
a	Each layer compacted so as to achieve at least 98% maximum dry density as per IS-2720 (Part-VII)	CUM	79320	32386	111706				
108	Back filling 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 directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.								
a	Each layer compacted so as to achieve at least 98% maximum dry density as per IS-2720 (Part-VII)	CUM	15669	0	15669				
109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	45805	19944	65749				
111	Supplying and filling sand upto any depth under floors, around foundations, plinths, inside ring foundations 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	450	934	1384				
200 CONCRETE WORKS									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
	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.								
202	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course , mud mat/Blinding layer under and around foundations/floors, trenches and underground structures, foundation below brick wall etc. at any depth below finished floor level etc.	CUM	5520	1791	7311				
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.								
a	M15 Grade	CUM	65	10	75				
b	M20 Grade	CUM	0	63	63				
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, pipe and cable trenches, 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.								
a	M25 Grade	CUM	4660	1290	5950				
b	M30 Grade	CUM	21100	8737	29837				
206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure 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 as per specification & drawing for the following.								
a	M25 Grade	CUM	0	4680	4680				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
b	M30 Grade	CUM	3175	287	3462				
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except machine foundation top decks supported over vibration isolation system 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	5720	1943	7663				
208	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) and top deck of TG foundation 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, preperation 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%.								
b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	0	1469	1469				
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 25 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	5720	3411	9131				
210	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	5720	75	5795				
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 under Item 1010)								
b	M25 grade	CUM	135	151	286				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
212	Screed 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.								
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	140	390	530				
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.								
a	M 25 grade	CUM	190	0	190				
b	M 30 grade	CUM	0	203	203				
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.								
b	M 30 grade	CUM	175	250	425				
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.								
a	Plain cement concrete of all grades	CUM	10	25	35				
b	Reinforced cement concrete of all grades	CUM	10	154	164				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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 .	CUDM	520	350	870				
217	Extra over and above St No 216 for cutting of reinforcement , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	70	80	150				
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	125	100	225				
219	Providing and applying curing compound of approved make where ever required as per manufacturer's specification.	SQM	0	10	10				
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.									
301	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	46660	18115	64775				
302	Fairface form work with good quality water proof ply wood of required thickness and smooth surface 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.	SQM	16335	34200	50535				
303	Fairface Formwork with good quality water proof ply wood of required thickness and smooth surface for TG 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	0	3200	3200				
304	Providing, fixing and removing formwork in block-outs /pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.								
a	Upto 150 mm depth	Each	60	125	185				
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	98	63	160				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	113	63	175				
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	88	63	150				
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	75	28	103				
400 REINFORCEMENT									
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings. (Steel in the scope of contractor)	MT	11	10	21				
402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 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. (TMT will be provided by BHEL)	MT	3485	2280	5765				
406	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	1	0	1				
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.									
502	Providing and laying in-situ light weight foam concrete insulation 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.								
b	Average 75 mm thickness	SQM	5970	608	6578				
c	Average 100 mm thickness	SQM	0	5669	5669				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	5970	8915	14885				
A508	Providing and laying pressed clay flooring tiles of 18 mm thickness and size 230x230 mm conforming to IS 3978/customer's specification with 8 mm thick 1:3 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) and pointing with cement mixed with crude oil etc all complete. (Water proofing paid elsewhere)	SQM	5970	9155	15125				
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	27470	15055	42525				
511	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	520	37	557				
512	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	3400	9101	12501				
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.									
601	Supplying & installation of bitumen impregnated fibre board 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.								
c	25 mm wide joints	SQM	50	240	290				
d	50 mm wide joints	SQM	210	275	485				
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:								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
a	12mm X 25mm	RM	0	40	40				
b	20mmX25mm	RM	0	37	37				
c	25mmX25mm	RM	100	254	354				
d	50mmX25mm	RM	50	111	161				
603	Supplying and filling in position hot applied bitumen sealing compound (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.								
a	10mm X 40mm	RM	0	75	75				
b	12mm X 25mm	RM	0	37	37				
c	20mmX25mm	RM	100	37	137				
604	Supplying and filling in position hot applied bitumen sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.								
a	10mm X 40mm	RM	0	45	45				
b	12mm X 25mm	RM	0	45	45				
c	20mmX25mm	RM	100	42	142				
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
a	25mmX25mm	RM	128	269	397				
b	50mmX25mm	RM	45	55	100				
606	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:								
d	230 mm wide and 6 mm thick	RM	0	50	50				
Ad	250 mm wide and 6 mm thick (eye-letted)	RM	35	100	135				
700 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.									
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required, edge protection angles with lugs etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	12	111	123				
702	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	10	10	20				
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required, edge protection angles with lugs etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	25	10	35				
704	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	14	34	48				
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.								
a	MS pipes of all diameters	Quintal	15	50	65				
b	PVC pipes / conduits of all diameters	Quintal	15	50	65				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
c	UPVC pipes / conduits of all diameters	Quintal	15	50	65				
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:								
i	Upto 250 kg	Each	15	125	140				
ii	Beyond 250 Kg and upto 500 kg	Each	15	125	140				
iii	Beyond 500 Kg and upto 750 kg	Each	15	125	140				
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:								
i	Upto 250 kg	Each	15	125	140				
ii	Beyond 250 Kg and upto 500 kg	Each	15	125	140				
iii	Beyond 500 Kg and upto 750 kg	Each	15	125	140				
706	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Each	100	32	132				
800 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. Crushing strength of grout shall generally be one grade higher than the base concrete. Min. grade of grout shall be M-30.									
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for concrete structures as per approved procedure including cost of nipples/ nozzles, cement readymix grout with admixture, curing, pressure pumps, slurry agitator etc.with appropriate non-shrink cement paste, water tightness test etc. all complete Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completion 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. (Measurement is to be done in Kg of Dry Grout consumed).	kg	200	200	400				
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	10	10	20				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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).	CUM	10	10	20				
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 ConbextraGP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	20	10	30				
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 Conbextra GP-2 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	20	10	30				
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.									
903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partical 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	0	10	10				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
903A	Providing, fitting and fixing solid core flush door in teakwood frame with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partial 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	40	100	140				
903B	Providing and fixing solid core factory made wooden flush doors (single or double shutter) of 35mmthk door shutter conforming to IS:2202, part-I, decorative type, core of block board construction, with frame of hard wood (Type and quality of hard wood approved by BHEL/NLC/LII), and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters, 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. (Finish painting paid separately)	SQM	8	0	8				
904	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	40	65	105				
905	Providing and fixing single or double steel door shutters of 38mm minimum thk with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	55	0	55				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 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. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	80	0	80				
906A	Providing and fixing automatic closing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 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. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	10	186	196				
907	Providing and fixing fire proof steel doors (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.	SQM	28	0	28				
907A	Providing and fixing automatic closing fire proof steel doors (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 4Hrs.	SQM	10	129	139				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)								
a	openable type	SQM	40	100	140				
b	fixed type	SQM	100	0	100				
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard 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 measured.	Kg	7410	18415	25825				
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.								
a	3mm	SQM	0	213	213				
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :								
a	Over head hydraulic door closures	Each	16	139	155				
b	Floor mounted Hydraulic door closers	Each	8	17	25				
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	2720	1863	4583				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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).								
a	Hand Operated	SQM	15	15	30				
b	Mechanically Operated	SQM	15	15	30				
c	Electrically operated	SQM	80	180	260				
914	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	20	0	20				
A914	Providing and fixing FRP doors of sintex or equivalent make including PVC/FRP frames, all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	40	61	101				
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.								
a	4 mm thick clear sheet glass	SQM	0	50	50				
b	4 mm thick ground glass	SQM	0	50	50				
c	5.5 mm thick clear float glass	SQM	30	14	44				
Ac	6 mm thick clear float glass	SQM	30	233	263				
d	6 mm thick wired glass	SQM	645	1448	2093				
f	4 mm thick ground glass	SQM	20	0	20				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
g	6 mm thick tinted heat reflecting type float glass	SQM	0	60	60				
h	6 mm thick clear toughened safety glass	SQM	20	65	85				
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	50	107	157				
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	0	100	100				
k	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	0	921	921				
l	6 mm thick laminated glass	SQM	0	97	97				
mA	24 mm thick insulated double glazing having 6 mm thick tinted heat reflecting type float glass on outer side and 6 mm thick clear float glass on inner side with 12 mm air gap & hermetically sealed shall be mounted on 15 micron anodised frame suitable for structural glazing system.	SQM	0	223	223				
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	80	395	475				
917	Providing and fixing 12 mm thick BWP particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	40	1494	1534				
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	20	30	50				
919	Providing and fixing 1 mm thk. MS sheet sliding shutters 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	10	0	10				
919A	Providing and fixing two leaf sliding door of flush welded steel with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	10	25	35				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
920	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealant, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	0	93	93				
1000 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.									
1001	Providing brick work 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 below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.								
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	50	50	100				
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.								
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	2155	2800	4955				
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	2170	55	2225				
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.								
a	Using perforated burnt clay bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 or concrete block	CUM	0	1306	1306				
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.								
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	50	3492	3542				
1006	Breaking 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	6	16				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1007	Providing and encasing of structural steel member with masonry work 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 under Item 1010)	CUM	0	125	125				
1009	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	10	7	17				
1010	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	225	1000	1225				
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	20	105	125				
1012	Providing and filling brick bats in soak pits all complete.	CUM	25	25	50				
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.									
1101	Providing Damp Proof Course 40mm thick 1:2:4 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.	SQM	374	457	831				
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.									
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	0	13086	13086				
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:4 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	10690	5086	15776				
A1201A	Providing 20 mm thick plaster in two layers on internal wall surfaces of rooms/water tanks and RCC supporting structures for louvers 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	0	1143	1143				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete.	SQM	13445	32767	46212				
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	5170	16934	22104				
1205	Providing 12mm thick cement mortar 1:4 plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	175	393	568				
1206	Providing and making decorative plaster of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	0	711	711				
1207	Forming groove 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	0	143	143				
1208	Providing drip coarse 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	580	677	1257				
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid under Item.1010)	SQM	0	1810	1810				
1210	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	0	50	50				
1300 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.									
1303	Providing and applying two or more coats of oil bound destemper 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	0	279	279				
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	4925	180	5105				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy/matt finish over a coat of primer over prepared plaster surface as per manufacturer's guideline and as directed by engineer in charge.	SQM	13445	29497	42942				
A 1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy/matt finish over 2 mm control thick plaster of paris punning on walls as per manufacturer's guideline and as directed by engineer in charge. . Plaster of paris punning shall be paid separately as per item no 1312.	SQM	13445	0	13445				
1305A	Providing and applying two or more coats of low VOC (volatile organic compound) acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	0	19124	19124				
1306	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	175	1432	1607				
A1306	Providing and applying 2 or more coats of oil resistant paint as per IS 161 of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	50	1051	1101				
1307	Two or more coats of fire resistant transparent paint 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	0	110	110				
1308	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	0	50	50				
1309	Two or more coats of synthetic enamel paint 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	0	100	100				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1311	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	50	0	50				
1312	Providing and applying 2 mm control thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	13445	28214	41659				
1313	Providing and applying ready made Epoxy Paint 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	0	707	707				
1315	Providing and applying two or more coats of Acrylic based weather coat paint 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 repellant and extremely durable with color fastness as per specification.	SQM	10690	686	11376				
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.									
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	9325	7155	16480				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with non-metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	1040	1000	2040				
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	50	644	694				
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping) of size 300X300X25 thick of approved shade as per IS 1237, including cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grindig and polishing complete with laying as per IS 1443 etc. all complete for following:								
a	Laid in floors	SQM	0	5617	5617				
A1404	Providing and laying 50 mm thick anti-skid interlocking M30 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.	SQM	0	1000	1000				
A1405	Providing and laying 50 mm thick floor finish with 25mm thk Terrazo Tiles(250x250) including cement concrete bedding etc. all complete.	SQM	0	520	520				
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 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	0	436	436				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1413	Providing and laying 14 to16mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 35mm 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	30	0	30				
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	0	150	150				
1415	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	30	22	52				
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following:								
c	7mm thick tiles In skirting and dado upto specific height	SQM	90	0	90				
e	5 mm thick tiles In skirting and dado upto specific height	SQM	50	0	50				
1418A	Providing and laying 10 mm thick non-skid heavy duty vitrified ceramic tiles of size 600x600 in flooring and skirting over underbed of 1 part cement and 3 parts coarse sand (overall 50 mm thick) by weight mixed with sufficient water, complete as per specification laid in pattern.	SQM	1540	2374	3914				
A1420	Providing and laying Heavy Duty vitrified Ceramic Tiles of 10 mm thick of reputed manufacturer of approved finish shade, brand and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.								
a	300X300 mm	SQM	43	6604	6647				
b	600X600 mm	SQM	90	0	90				
A1421	Providing and laying Heavy Duty vitrified Ceramic Tiles of size 600x600mm(approved size) and 10mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 40mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar all complete.	SQM	70	13816	13886				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1422A	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including resin based mortar like epoxy for jointing ,preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. Total thickness of flooring shall be 50 mm.The tiles should be abrasion resistant & durable.								
a	25mm thick	SQM	0	313	313				
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	0	75	75				
1426	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed cement mortar 1:3, scaffolding etc. all complete.	SQM	0	75	75				
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, 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								
a	5mm thick	SQM	0	122	122				
A1428	Providing and laying 2 mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 over concrete underbed of 48 mm all complete.	SQM	875	1086	1961				
1429	Providing and fixing removable type flooring system consisting of fire resistant particle board 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	0	400	400				
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	400	2300	2700				
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	80	2260	2340				
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	0	38	38				
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.									
1501A	Designing, providing 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 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 125mm 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 20 micron on other face over epoxy primer applied over hot dipped galvanising @180 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.								
a	Span Upto 1800mm	SQM	6310	7000	13310				
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1135	3463	4598				
1502	Providing and fixing shear connectors 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	71	116	187				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1503	Designing, providing and fixing External 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 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	0	9782	9782				
1505A	Designing, providing and fixing 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 0.75m center to center to hold the insulation and external sheeting.	SQM	0	8344	8344				
1506	Providing and fixing insulation of resin bonded mineral wool 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	20	8344	8364				
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 24 Gx 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	0	7563	7563				
1600 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.									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C (84 mm wide 12.5 mm deep closed type panels) or approved equivalent with corrosion resistant aluminium alloy AA5050 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.	SQM	715	7623	8338				
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.									
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	0	150	150				
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	1320	685	2005				
1707	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.								
b	150 mm Dia	RM	675	0	675				
c	200 mm Dia	RM	0	1800	1800				
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.									
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	5000	500	5500				
A1801	Providing and laying 225 mm thick well compacted laterite soling (including breaking of locally available laterite stone for use in soling, to specified size as per spec. and as directed by engineer in charge) with interstices properly filled with grits for paving etc. complete as per specification & direction of Engineer-in-Charge.	CUM	2200	1317	3517				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
B1801	Providing and laying 150 mm thick well compacted laterite soling(including breaking of locally available laterite stone for use in soling, to specified size as per spec. and as directed by engineer in charge) with interstices properly filled with grits for paving etc. complete as per specification & direction of Engineer-in-Charge.	CUM	4000	384	4384				
1804	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	0	100	100				
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	428	100	528				
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	428	100	528				
1807	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	0	25	25				
1808	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	40	25	65				
1809	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	0	50	50				
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	0	25	25				
1811	Providing and fixing weep holes in Drains consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	50	100	150				
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 mats/rods shall be supplied by BHEL free of cost)	MT	50	125	175				
1813	Providing Earthing pit 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	10	0	10				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	10	0	10				
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	125	100	225				
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.								
b	100 mm dia	RM	0	125	125				
c	150 mm dia	RM	0	125	125				
d	200 mm dia	RM	0	125	125				
1832	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	0	1	1				
1834	Supply, fabrication and fixing of handrails with 20 mm square MS balustrade with suitable MS flat & aluminium handrail including transportation, loading/unloading, painting etc. all complete. Aluminium shall be paid separately.	MT	1	1	2				
1835	Cinder filling for toilets etc complete as per specification and direction of Engineer-in-Charge.	CUM	8	37	45				
1836	Providing and fixing PVC nosing for stairs all complete as per specification and direction of Engineer-in-Charge.	RM	300	400	700				
1837	Providing and fixing M.S. grills made of 25 mm X 6mm M.S. flats 112mm - 20mm M.S. square bar of approved design to suit security requirements of approved pattern in frames of windows etc including priming coat with approved steel primer as per spec. all complete.								
a	Fixed to steel windows by welding	kg	50	125	175				
b	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	50	125	175				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1838	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	30	25	55				
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.									
2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 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. GI barbed wire fencing of height of 600 mm 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 item 2007)	RM	470	0	470				
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	7	0	7				
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	7	0	7				
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	6	0	6				
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	5	0	5				
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.									
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	17	95	112				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	17	54	71				
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:								
a	25mm nominal bore.	EACH	6	18	24				
b	50mm nominal bore.	EACH	6	12	18				
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:								
a	15 mm nominal bore.	RM	60	221	281				
b	20 mm nominal bore.	RM	96	165	261				
c	25 mm nominal bore.	RM	60	165	225				
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:								
a	15 mm nominal bore.	RM	0	105	105				
b	20 mm nominal bore.	RM	0	105	105				
c	25 mm nominal bore.	RM	96	105	201				
d	50 mm nominal bore.	RM	6	105	111				
A2106	Providing and fixing 600mmx450mmx5.5mm thk bevelled edge mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	6	14	20				
2109A	Providing and fixing 20mm dia , 600 mm long chromium plated brass pipes wall mounted towel rod with C.P. Brackets etc all complete.	EACH	6	14	20				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	12	14	26				
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	12	14	26				
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. all complete.	EACH	6	14	20				
2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	3	5	8				
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.								
a	1000 litres capacity	EACH	6	0	6				
b	2000 litres capacity	EACH	3	4	7				
c	5000 litres capacity	EACH	0	3	3				
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	1	9	10				
2116	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	6	15	21				
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.									
2201 A	Supply and fixing glazed vitreous china Wash Basin of size 550 mm x 440 mm and of approved shade 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.	EACH	6	34	40				
2203a	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	0	8	8				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2204A	Providing and fixing colour glazed vitreous china European type water closet of ' Hindustan Sanitary ware' make or approved make conforming to IS:2556 390 mm high 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.								
a	Floor mounted	EACH	6	15	21				
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	6	15	21				
2206A	Providing and fixing white flat back glazed vitreous china urinals half cell of size 430x260x350 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	12	30	42				
2207A	Supply, laying and jointing MS pipe conforming to IS:3589-2001 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.								
a	110mm dia pipes	RM	150	150	300				
b	160mm dia pipes	RM	0	75	75				
2207B	Supply, laying and jointing cast iron spun pipe(class LA) conforming to IS:1536 including bends, branches and all other necessary fittings, socket and spigot joint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.								
a	110mm dia pipes	RM	150	675	825				
2207C	Supply, laying and jointing sand cast iron pipe conforming to IS:1729 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.								
a	160mm dia pipes	RM	400	675	1075				
2207D	Supply, laying and jointing salt glazed stoneware pipe conforming to IS:651 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.								
a	150mm dia pipes	RM	50	100	150				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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.								
a	200mm dia	RM	0	50	50				
b	300mm dia	RM	25	108	133				
c	450mm dia	RM	25	105	130				
b	600mm dia	RM	0	13	13				
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.								
a	150mm dia	RM	0	68	68				
b	250mm dia	RM	0	68	68				
c	300mm dia	RM	0	55	55				
d	500mm dia	RM	0	15	15				
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:								
a	450mm dia	RM	0	13	13				
b	600mm dia	RM	0	13	13				
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	7	25	32				
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	2	13	15				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, RCC 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:								
a	100x100mm P or S Type.	EACH	6	28	34				
b	150x100mm P or S Type.	EACH	6	8	14				
c	150x150mm P or S Type.	EACH	6	3	9				
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	15	64	79				
2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	3	5	8				
2218	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	3	5	8				
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	6	20	26				
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	1	20	21				
2300 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.									
2319	Supply, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete.	MT	1	0	1				
2320	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm bore dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete. Rate of galvanization: 900 gm/sq.m of zinc.	MT	1	0	1				
2400 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.									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	0	5777	5777				
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	0	144	144				
B2402	Extra over ST No. 2401 to A2402 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	0	3945	3945				
2405	Providing & laying water bound macadam base course 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	0	1897	1897				
2406	Providing and laying water bound macadam base course 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	0	253	253				
2412	Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone 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.	RM	0	1040	1040				
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	0	121	121				
2414A	Supply and laying 150mm dia R.C.C NP-3 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	0	250	250				
A2417	Providing and laying of plain cement concrete of grade M10 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	0	128	128				
2418	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	0	2083	2083				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A2418	Providing and laying cement concrete of grade M25 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	0	325	325				
A2419	Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	CUM	0	766	766				
	REINFORCEMENT								
2420	Providing and fixing in position MS dowel bar 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.	MT	0	33	33				
2421	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer.	MT	0	104	104				
	MISCELLANEOUS								
2423	Providing & installation of bitumen impregnated fibre board 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.	SQM	0	765	765				
2424	Providing and filling in position hot applied bitumen sealing compund (Grade A) of specified thick (minimum 25 mm) 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	0	2548	2548				
2425	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	0	38	38				
A2426	Providing and laying 150 mm thick RCC precast planks of grade M25 concrete grouted in Cement mortar (1cement: 2sand) etc all complete as per specification, drawing and as directed by Engineer.	SQM	0	1560	1560				
A2427	Providing and laying 150mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	0	1560	1560				
2428	Providing and laying 125 micron thick LDPE liner etc. complete as per specification, drawing and as directed by Engineer.	SQM	0	7658	7658				
2429	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 150mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting using burnt clay bricks of class designation 7.5 of nominal dimension as per specification and direction of engineer-in-charge.	CUM	0	13	13				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2600	RAIN WATER HARVESTING								
2601	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	130	65	195				
2602	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	450	225	675				
2603	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	90	45	135				
2604	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	60	30	90				
2605	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	150	75	225				
2606	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	36	18	54				
2607	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	120	60	180				
2608	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	300	150	450				
2800	Carrying out bench mark from the nearest GTS bench mark or any other available source as approved by the engineer-in-charge to different locations in the project area including clearing of jungles and/or cutting trees and any other works required for completion of the said item etc all complete as per specification and instructions of the engineer-in-charge. (Construction of bench mark pillar to be paid separately)	KM	5	0	5				
2801	Carrying out topographical survey of plant and allied areas showing all permanent & general features and detailed contour survey by taking spot levels at 25m interval, carrying out cross section of canal/nallah by taking spot levels at 5m interval or less including clearance of jungles and cutting of trees etc which are interfering with the survey works and any other field works necessary for completion of the said item, preparation and submission of all plans (maps), reports, CD records and originals etc all complete as per specification and instructions of the engineer-in-charge.	Hectare	27	0	27				
2802	Construction of bench mark pillar/reference pillar/grid pillar at different locations including clearing of jungles, excavation, supply of materials, pillar marking, backfilling, white washing, painting on MS plate etc all complete as per specification, drawings and instructions of the engineer-in-charge.								
a	Bench mark pillar	Each	2	0	2				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
b	Grid/reference pillar	Each	30	0	30				
2900	Earth work in stripping of top soil upto a maximum depth of 300 mm below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	63600	150	63750				
	TOTAL								

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1547

FOR

Construction of Civil and Architectural works for Package-A&B (Unit-1&2) of 2 X 500 MW Boiler and Steam Turbo Generator Package

at

Neyveli New Thermal Power Station, Neyveli, Cuddalur Dist,
TamilNadu

VOLUME –II PRICE BID PACKAGE-B (Revision 01)



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

Tender Specification No. BHEL: PSSR: SCT: 1547

for

Construction of Civil and Architectural works for Package-A&B (Unit-1&2) of 2 X 500 MW Boiler and Steam Turbo Generator Package at Neyveli New Thermal Power Station, Neyveli, Cuddalur Dist, TamilNadu.

One set of Tender documents consisting of

- 1) TECHNOCOMMERCIAL BID - 2 copies
- 2) PRICE BID - 2 copies

Book Sl no

Issued to
M/s

Refer NIT for Last date of submission

Please note this tender document is not transferable

For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

GENERAL MANAGER / HR and SCT

Place: Chennai -35
Date:

PRICE BID

PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding BHEL's Customer specifications and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- 2) The work shall be carried out as per construction drawings (which will be issued progressively during the execution), specifications, the description of the items in this schedule and/or Engineer's instructions., The layout, sizes and details of the building, structures and foundations may vary at a large extent during actual construction.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant, temporary works, labour, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, from existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) Engineer's decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 8) In case of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.
- 9) Refer the relevant clauses in the GCC for payment of additional items and Quantity variation.
- 10) Refer Relevant Clause in NIT for order of precedence.

RATE SCHEDULE FOR PACKAGE-B BHEL PSSR SCT 1547, NNTPS 2 x 500 MW UNIT 2									
Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
100 EARTH WORK	Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering, installation and maintenance of peizometers to check ground water lowering effect in unfavourable positions etc. as per specification, drawing and as directed by engineer- in-charge for the following.								
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.								
a	Depth from ground level not exceeding 2 m	CUM	59750	25175	84925				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	39280	9731	49011				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	26155	6334	32489				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	10000	649	10649				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	0	171	171				
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
a	Depth from ground level but not exceeding 2 m	CUM	500	0	500				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	1500	9831	11331				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1000	6620	7620				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	250	263	513				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	0	171	171				
104	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, getting insurance from approved insurance agency against all claims with respect to damage to property or injury to public etc. due to blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
a	Depth from ground level but not exceeding 2 m	CUM	109	0	109				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	500	0	500				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	500	0	500				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	250	0	250				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
a	Depth from ground level but not exceeding 2 m	CUM	100	0	100				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	200	0	200				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	500	0	500				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	200	0	200				
106	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.								
b	Depth exceeding 2 m but not exceeding 4 m	CUM	68	0	68				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	337	0	337				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	199	0	199				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains, under grade slab etc to proper grade and level in layers not exceeding 150 mm thickness using/with selected materials from compulsorily excavated soil 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.								
a	Each layer compacted so as to achieve at least 98% maximum dry density as per IS-2720 (Part-VII)	CUM	99720	33127	132847				
109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	42810	22533	65343				
111	Supplying and filling sand upto any depth under floors, around foundations, plinths, inside ring foundations 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	51	1149	1200				
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.									
202	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course , mud mat/Blinding layer under and around foundations/floors, trenches and underground structures, foundation below brick wall etc. at any depth below finished floor level etc.	CUM	4990	1687	6677				
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.								
a	M15 Grade	CUM	12	0	12				
b	M20 Grade	CUM	0	72	72				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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, pipe and cable trenches, 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.								
a	M25 Grade	CUM	4650	1200	5850				
b	M30 Grade	CUM	20215	10906	31121				
206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure 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 as per specification & drawing for the following.								
a	M25 Grade	CUM	0	5201	5201				
b	M30 Grade	CUM	2100	0	2100				
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except machine foundation top decks supported over vibration isolation system 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	5750	2183	7933				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
208	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) and top deck of TG foundation 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%.								
b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	0	1469	1469				
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 25 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	5750	3411	9161				
210	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	5750	75	5825				
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 under Item 1010)								
b	M25 grade	CUM	180	151	331				
212	Screed 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.								
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	70	289	359				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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.								
a	M 25 grade	CUM	180	0	180				
b	M 30 grade	CUM	0	203	203				
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.								
b	M 30 grade	CUM	135	250	385				
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.								
a	Plain cement concrete of all grades	CUM	10	25	35				
b	Reinforced cement concrete of all grades	CUM	10	25	35				
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 .	CUDM	520	350	870				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
217	Extra over and above St No 216 for cutting of reinforcement , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	70	80	150				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	125	0	125				
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.									
301	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	41740	19139	60879				
302	Fairface form work with good quality water proof ply wood of required thickness and smooth surface 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.	SQM	5873	36045	41918				
303	Fairface Formwork with good quality water proof ply wood of required thickness and smooth surface for TG 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	0	3200	3200				
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.								
a	Upto 150 mm depth	Each	50	75	125				
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	88	53	140				
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	113	53	165				
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	88	53	140				
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	75	28	103				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
400 REINFORCEMENT									
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings. (Mild steel in the scope of contractor.)	MT	10	10	20				
402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 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. (TMT will be provided by BHEI)	MT	3305	2066	5371				
500 WATER PROOOFING 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.									
502	Providing and laying in-situ light weight foam concrete insulation 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.								
b	Average 75 mm thickness	SQM	2972	1646	4618				
c	Average 100 mm thickness	SQM	0	3905	3905				
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	2972	8429	11401				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A508	Providing and laying pressed clay flooring tiles of 18 mm thickness and size 230x230 mm conforming to IS 3978/customer's specification with 8 mm thick 1:3 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) and pointing with cement mixed with crude oil etc all complete. (Water proofing paid elsewhere)	SQM	2972	8429	11401				
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	23555	13758	37313				
511	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	181	0	181				
512	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	950	7756	8706				
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.									
601	Supplying & installation of bitumen impregnated fibre board 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.								
c	25 mm wide joints	SQM	0	180	180				
d	50 mm wide joints	SQM	50	242	292				
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:								
a	12mm X 25mm	RM	0	45	45				
b	20mmX25mm	RM	0	35	35				
c	25mmX25mm	RM	0	100	100				
d	50mmX25mm	RM	0	111	111				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
603	Supplying and filling in position hot applied bitumin sealing compound (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.								
a	10mm X 40mm	RM	0	75	75				
b	12mm X 25mm	RM	0	35	35				
c	20mmX25mm	RM	0	35	35				
604	Supplying and filling in position hot applied bitumen sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.								
a	10mm X 40mm	RM	0	45	45				
b	12mm X 25mm	RM	0	45	45				
c	20mmX25mm	RM	100	35	135				
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicon or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:								
a	25mmX25mm	RM	150	175	325				
b	50mmX25mm	RM	50	50	100				
606	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:								
d	230 mm wide and 6 mm thick	RM	0	50	50				
Ad	250 mm wide and 6 mm thick (eye-letted)	RM	35	100	135				
700 MS EMBEDMENTS									

SIGNATURE OF BIDDER

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
	Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.								
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required, edge protection angles with lugs etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	6	110	115				
702	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	10	10	20				
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required, edge protection angles with lugs etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	24	10	34				
704	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	14	34	48				
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.								
a	MS pipes of all diameters	Quintal	15	50	65				
b	PVC pipes / conduits of all diameters	Quintal	15	50	65				
c	UPVC pipes / conduits of all diameters	Quintal	15	50	65				
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:								
i	Upto 250 kg	Each	15	75	90				
ii	Beyond 250 Kg and upto 500 kg	Each	15	75	90				
iii	Beyond 500 Kg and upto 750 kg	Each	15	75	90				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:								
i	Upto 250 kg	Each	15	75	90				
ii	Beyond 250 Kg and upto 500 kg	Each	15	75	90				
iii	Beyond 500 Kg and upto 750 kg	Each	15	75	90				
706	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Each	100	32	132				
800 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. Crushing strength of grout shall generally be one grade higher than the base concrete. Min. grade of grout shall be M-30.									
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for concrete structures as per approved procedure including cost of nipples/ nozzles, cement readymix grout with admixture, curing, pressure pumps, slurry agitator etc.with appropriate non-shrink cement paste, water tightness test etc. all complete Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completion 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. (Measurement is to be done in Kg of Dry Grout consumed).	KG	200	300	500				
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	10	10	20				
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).	CUM	10	10	20				
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 ConbextraGP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	20	10	30				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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 Conbextra GP-2 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	30	10	40				
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.									
903A	Providing, fitting and fixing solid core flush door in teakwood frame with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldraps, 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	100	120				
903B	Providing and fixing solid core factory made wooden flush doors (single or double shutter) of 35mm thk door shutter conforming to IS:2202, part-I, decorative type, core of block board construction, with frame of hard wood (Type and quality of hard wood approved by BHEL/NLC/LII), and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters, 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 aldraps, 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. (Finish painting paid separately)	SQM	20	0	20				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
904	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	17	85	101				
905	Providing and fixing single or double steel door shutters of minimum thickness of 38mm with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	55	0	55				
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 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. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	15	0	15				
906A	Providing and fixing automatic closing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 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. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	10	114	124				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
907	Providing and fixing fire proof steel doors (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.	SQM	27	0	27				
907A	Providing and fixing automatic closing fire proof steel doors (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 4Hrs.	SQM	10	129	139				
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)								
a	openable type	SQM	50	100	150				
b	Fixed type	SQM	50	0	50				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard 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 measured.	Kg	2774	10641	13415				
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.								
a	3mm	SQM	0	163	163				
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :								
a	Over head hydraulic door closures	Each	4	95	99				
b	Floor mounted Hydraulic door closers	Each	2	15	17				
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	955	3229	4184				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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).								
a	Hand Operated	SQM	15	30	45				
b	Mechanically Operated	SQM	10	30	40				
c	Electrically operated	SQM	0	235	235				
A914	Providing and fixing PVC doors(25 thk double skin) /FRP of sintex or equivalent make including PVC/FRP frames, all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	0	55	55				
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.								
a	4 mm thick clear sheet glass	SQM	0	50	50				
Aa	4 mm thick ground glass	SQM	0	50	50				
Ac	6 mm thick clear float glass	SQM	10	147	157				
d	6 mm thick wired glass	SQM	226	1532	1758				
f	4 mm thick ground glass	SQM	20	0	20				
g	6 mm thick tinted heat reflecting type float glass	SQM	0	60	60				
h	6 mm thick clear toughened safety glass	SQM	20	60	80				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
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	10	22	32				
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	0	100	100				
k	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	0	39	39				
l	6 mm thick laminated glass	SQM	0	58	58				
m	24 mm thick insulated double glazing having 6 mm thick tinted heat reflecting type float glass on outer side and 6 mm thick clear float glass on inner side with 12 mm air gap & hermetically sealed shall be mounted on 15 micron anodised frame suitable for structural glazing system.	SQM	0	248	248				
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	20	125	145				
917	Providing and fixing 12 mm thick BWP particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	10	50	60				
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	10	25	35				
919A	Providing and fixing two leaf sliding door of flush welded steel with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	0	25	25				
1000 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.									
1001	Providing brick work 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 below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	0	50	50				
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	25	0	25				
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.								
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	1250	3375	4625				
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	1300	0	1300				
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.								
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	15	2790	2805				
1006	Breaking 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	0	4	4				
1007	Providing and encasing of structural steel member with masonry work 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 under Item.1010)	CUM	0	75	75				
1009	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	0	3	3				
1010	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	50	1000	1050				
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	10	0	10				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1012	Providing and filling brick bats in soak pits all complete.	CUM	25	25	50				
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.									
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.	SQM	300	263	563				
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.									
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	0	14070	14070				
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:4 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	3437	0	3437				
A1201A	Providing 20 mm thick plaster in two layers on internal wall surfaces of rooms/water tanks and RCC supporting structures for louvers 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	0	1143	1143				
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete.	SQM	5189	21544	26733				
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	3798	10509	14306				
1205	Providing 12mm thick plaster of cement mortar 1:4 in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	170	50	220				
1206	Providing and making decorative plaster of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	0	351	351				
1207	Forming groove 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 battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	0	103	103				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1208	Providing drip coarse 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	136	524	660				
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (Chicken wire mesh to paid separately under Item.1010)	SQM	0	1810	1810				
1210	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	0	50	50				
1300 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.									
1303	Providing and applying two or more coats of oil bound destemper 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	0	279	279				
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	3799	0	3799				
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy/matt finish over a coat of primer over prepared plaster surface as per manufacturer's guideline and as directed by engineer in charge.	SQM	4504	31378	35882				
A 1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy/matt finish over 2 mm control thick plaster of paris punning on walls as per manufacturer's guideline and as directed by engineer in charge. . Plaster of paris punning shall be paid separately as per item no 1312.	SQM	4504	0	4504				
1306	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	341	1379	1720				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1306	Providing and applying 2 or more coats of oil resistant paint as per IS 161 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	50	1051	1101				
1307	Two or more coats of fire resistant transparent paint 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	0	110	110				
1308	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	0	50	50				
1309	Two or more coats of synthetic enamel paint 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	0	100	100				
1312	Providing and applying 2 mm control thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	4504	10991	15496				
1313	Providing and applying ready made Epoxy Paint 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	0	300	300				
1315	Providing and applying two or more coats of Acrylic based weather coat paint 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 repellant and extremely durable with color fastness as per specification.	SQM	3437	0	3437				
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.									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	7501	6998	14499				
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with non-metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	849	1000	1849				
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	0	629	629				
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping) of size 300X300X25 thick of approved shade as per IS 1237, including cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grindig and polishing complete with laying as per IS 1443 etc. all complete for following:								
a	Laid in floors	SQM	0	5617	5617				
A1404	Providing and laying 50 mm thick anti-skid interlocking M30 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.	SQM	0	1000	1000				
A1405	Providing and laying 50 mm thick floor finish with 25mm thk Terrazo Tiles(250x250) including cement concrete bedding etc. all complete.	SQM	0	520	520				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 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	0	436	436				
1413	Providing and laying 14 to16mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 35mm 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	0	50				
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	20	50	70				
1415	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	20	0	20				
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following:								
c	7mm thick tiles In skirting and dado upto specific height	SQM	40	0	40				
e	5 mm thick tiles In skirting and dado upto specific height	SQM	50	0	50				
1418A	Providing and laying 10 mm thick non-skid heavy duty vitrified ceramic tiles of size 600x600 in flooring and skirting over underbed of 1 part cement and 3 parts coarse sand (overall 50 mm thick) by weight mixed with sufficient water, complete as per specification laid in pattern.	SQM	1056	1578	2634				
A1420	Providing and laying Heavy Duty vitrified Ceramic Tiles of 10 mm thick of reputed manufacturer of approved finish shade, brand and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.								
b	600X600 mm	SQM	90	0	90				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1421	Providing and laying Heavy Duty vitrified Ceramic Tiles of size 600x600mm(approved size) and 10mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 40mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar all complete.	SQM	73	4807	4879				
1422A	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles conforming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including resin based mortar like epoxy for jointing ,preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. Total thickness of flooring shall be 50 mm.The tiles should be abrasion resistant & durable.								
a	25mm thick	SQM	0	713	713				
1424	Providing & fixing chemical resistant (AR) (Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	0	244	244				
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	0	25	25				
1426	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed cement mortar 1:3, scaffolding etc. all complete.	SQM	0	25	25				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size , 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:								
a	5mm thick	SQM	0	10	10				
A1428	Providing and laying 2 mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 over concrete underbed of 48 mm all complete.		852	205	1057				
1429	Providing and fixing removable type flooring system consisting of fire resistant particle board 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	190	200	390				
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.								
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	100	750	850				
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	50	750	800				
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	0	13	13				
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.									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1501A	Designing, providing 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 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 125mm 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 20 micron on other face over epoxy primer applied over hot dipped galvanising @180 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.								
a	Span Upto 1800mm	SQM	4550	13000	17550				
b	Span Exceeding 1800mm and upto 2500 mm	SQM	755	3463	4218				
1502	Providing and fixing shear connectors 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	53	116	169				
1503	Designing, providing and fixing External 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 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	0	9782	9782				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1505A	Designing, providing and fixing 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 0.75m center to center to hold the insulation and external sheeting.	SQM	0	8344	8344				
1506	Providing and fixing insulation of resin bonded mineral wool 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	0	8344	8344				
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 24 Gx 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	0	1250	1250				
1600 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.									
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C (84 mm wide 12.5 mm deep closed type panels) or approved equivalent with corrosion resistant aluminium alloy AA5050 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	SQM	577	0	577				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
AA1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C (84 mm wide 12.5 mm deep closed type panels) or approved equivalent with corrosion resistant aluminium alloy AA5050 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 (Materials for structural platform grid/catway made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	0	1340	1340				
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.									
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	0	150	150				
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	401	181	582				
1707	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.								
b	150 mm Dia	RM	675	0	675				
c	200 mm Dia	RM	0	1800	1800				
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.									
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	4000	500	4500				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A1801	Providing and laying 225 mm thick well compacted laterite soling(including breaking of locally available laterite stone for use in soling, to specified size as per spec. and as directed by engineer in charge) with interstices properly filled with grits for paving etc. complete as per specification & direction of Engineer-in-Charge.	CUM	4000	1250	5250				
B1801	Providing and laying 150 mm thick well compacted laterite soling(including breaking of locally available laterite stone for use in soling, to specified size as per spec. and as directed by engineer in charge) with interstices properly filled with grits for paving etc. complete as per specification & direction of Engineer-in-Charge.	CUM	2000	384	2384				
1804	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	0	100	100				
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	0	100	100				
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	0	100	100				
1807	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	0	25	25				
1808	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	10	25	35				
1809	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	0	50	50				
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	0	25	25				
1811	Providing and fixing weep holes in Drains consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	50	100	150				
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 mats/rods shall be supplied by BHEL free of cost)	MT	50	125	175				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1813	Providing Earthing pit 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	10	0	10				
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	10	0	10				
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	125	100	225				
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.								
b	100 mm dia	RM	0	75	75				
c	150 mm dia	RM	0	75	75				
d	200 mm dia	RM	0	75	75				
1832	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	0	1	1				
1834	Supply, fabrication and fixing of handrails with 20 mm square MS balustrade with suitable MS flat & aluminium handrail including transportation, loading/unloading, painting etc. all complete. Aluminium shall be paid separately.	MT	0	1	1				
1835	Cinder filling for toilets etc complete as per specification and direction of Engineer-in-Charge.	CUM	2	35	37				
1836	Providing and fixing PVC nosing for stairs all complete as per specification and direction of Engineer-in-Charge.	RM	300	400	700				
1837	Providing and fixing M.S. grills made of 25 mm X 6mm M.S. flats 112mm -20mm M.S. square bar of approved design to suit security requirements of approved pattern in frames of windows etc including priming coat with approved steel primer as per spec. all complete.								
a	Fixed to steel windows by welding	kg	50	125	175				
b	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	50	125	175				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
1838	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	30	25	55				
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.									
2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 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 . GI barbed wire fencing of height of 600 mm conforming 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 item 2007)	RM	50	0	50				
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	7	0	7				
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.									
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	15	95	110				
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	15	54	69				
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:								
a	25mm nominal bore.	EACH	5	18	23				
b	50mm nominal bore.	EACH	5	12	17				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:								
a	15 mm nominal bore.	RM	50	221	271				
b	20 mm nominal bore.	RM	80	165	245				
c	25 mm nominal bore.	RM	50	165	215				
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:								
a	15 mm nominal bore.	RM	0	105	105				
b	20 mm nominal bore.	RM	0	105	105				
c	25 mm nominal bore.	RM	80	105	185				
d	50 mm nominal bore.	RM	104	105	209				
A2106	Providing and fixing 600mmx450mmx5.5mm thk bevelled edge mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	5	14	19				
2109A	Providing and fixing 20mm dia , 600 mm long chromium plated brass pipes wall mounted towel rod with C.P. Brackets etc all complete.	EACH	5	14	19				
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	10	14	24				
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	10	14	24				
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	5	14	19				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	2	5	7				
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.								
a	1000 litres capacity	EACH	5	0	5				
b	2000 litres capacity	EACH	2	2	4				
c	5000 litres capacity	EACH	0	1	1				
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	1	1	2				
2116	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	5	10	15				
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.									
2201 A	Supply and fixing glazed vitreous china Wash Basin of size 550 mm x 440 mm and of approved shade 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.	EACH	5	21	26				
2203A	Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	0	3	3				
2204A	Providing and fixing colour glazed vitreous china European type water closet of ' Hindustan Sanitary ware' make or approved make conforming to IS:2556 390 mm high 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.								

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
a	Floor mounted	EACH	5	10	15				
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	5	10	15				
2206A	Providing and fixing white flat back glazed vitreous china urinals half cell of size 430x260x350 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	10	20	30				
2207A	Supply, laying and jointing MS pipe conforming to IS:3589-2001 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.								
a	110mm dia pipes	RM	125	200	325				
b	160mm dia pipes	RM	0	100	100				
2207B	Supply, laying and jointing cast iron spun pipe(class LA) conforming to IS:1536 including bends, branches and all other necessary fittings, socket and spigot joint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.								
a	110mm dia pipes	RM	125	100	225				
2207C	Supply, laying and jointing sand cast iron pipe conforming to IS:1729 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.								
a	160mm dia pipes	RM	300	100	400				
2207D	Supply, laying and jointing salt glazed stoneware pipe conforming to IS:651 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.								
a	150mm dia pipes	RM	50	0	50				
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.								
a	200mm dia	RM	0	25	25				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
b	300mm dia	RM	0	75	75				
c	450mm dia	RM	25	73	98				
b	600mm dia	RM	25	0	25				
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.								
a	150mm dia	RM	7	55	62				
b	250mm dia	RM	7	55	62				
c	300mm dia	RM	7	25	32				
d	500mm dia	RM	0	15	15				
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	8	10	18				
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	5	0	5				
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, RCC 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:								
a	100x100mm P or S Type.	EACH	5	22	27				
b	150x100mm P or S Type.	EACH	5	3	8				
c	150x150mm P or S Type.	EACH	5	3	8				
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	15	58	73				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	2	0	2				
2218	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	3	0	3				
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	5	0	5				
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	1	0	1				
2300 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.									
A2301	Fabrication and erection of catway above false ceiling (for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc), consisting of mild steel rolled section conforming to IS:2062 & chequered plate(min. 6 mm thk.) conforming to IS: 3052 as per specification, drawing & instructions of engineer in charge including cleaning, application of primer and paint , connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), inspection of welds, visual inspection, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, return of surplus / waste steel materials to store etc all complete. [structural steel to be supplied to vendor by BHEL free of cost, all other accessories like welding consumables, nuts & bolts etc. shall be supplied by vendor]	MT	0	50	50				
2302A	Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface to grade ST-2.5 as per SIS05-5900 or as per IS:1477(Part-I) and applying two coat of red oxide zinc chromate conforming to IS:2074 in coats of minimum 50 micron (DFT) at shop and 50 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	0	50	50				
2304A	Providing and applying two coats of HB synthetic enamel paint with glossy finish with minimum 75 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 175 microns including protection and cleaning, scaffolding etc. all complete.	MT	0	50	50				
2400 ROAD WORKS									

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
	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.								
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	0	5777	5777				
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	0	144	144				
B2402	Extra over ST No. 2401 to A2402 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	0	3945	3945				
2405	Providing & laying water bound macadam base course 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	0	1897	1897				
2406	Providing and Laying water bound macadam base course 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	0	253	253				
2412	Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone 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.	RM	0	1040	1040				
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	0	121	121				
2414A	Supply and laying 150mm dia R.C.C NP-3 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	0	250	250				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A2417	Providing and laying of plain cement concrete of grade M10 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	0	128	128				
2418	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	0	2083	2083				
A2418	Providing and laying cement concrete of grade M25 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	0	325	325				
A2419	Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	CUM	0	766	766				
	REINFORCEMENT								
2420	Providing and fixing in position MS dowel bar 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.	MT	0	33	33				
2421	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer.	MT	0	104	104				
	MISCELLANEOUS								
2423	Providing & installation of bitumen impregnated fibre board 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.	SQM	0	765	765				
2424	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick (minimum 25 mm) 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	0	2548	2548				
2425	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	0	38	38				
A2426	Providing and laying 150 mm thick RCC precast planks of grade M25 concrete grouted in Cement mortar (1cement: 2sand) etc all complete as per specification, drawing and as directed by Engineer.	SQM	0	1560	1560				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
A2427	Providing and laying 150mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	0	1560	1560				
2428	Providing and laying 125 micron thick LDPE liner etc. complete as per specification, drawing and as directed by Engineer.	SQM	0	7658	7658				
2429	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 150mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting using burnt clay bricks of class designation 7.5 of nominal dimension as per specification and direction of engineer-in-charge.	CUM	0	13	13				
2600	RAIN WATER HARVESTING								
2601	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	130	65	195				
2602	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	450	225	675				
2603	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	90	45	135				
2604	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	60	30	90				
2605	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	150	75	225				
2606	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	36	18	54				
2607	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	120	60	180				
2608	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	300	150	450				

Sr No	Description	Unit	Qty		Total Qty	Rate		Amount	
			SG	TG		In fig	In words	In fig	In words
2900	Earth work in stripping of top soil upto a maximum depth of 300 mm below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	63600	150	63750				
	TOTAL								