

03rd December 2025

NOTICE INVITING TENDER (NIT)

The Tata Power Company Limited Invites Tenders through E-Tender Two-Part bidding process from interested bidders (with manufacturing / assembling facilities in India) for the following package required for its Transmission Divisions in Mumbai: -

A. Summary of the tendered package:

For the following packages contact person shall be Mr. Naman Patel (naman.patel@tatapower.com) & Mr. Vivek Mittal (vivek.mittal@tatapower.com)

Sr No.	Description	Tender Reference no.	Bid Guarantee Fee / EMD (Rs.)	Tender Fee (Rs.)
1.	Construction of G+7 floor building for establishment of new 220KV/33KV GIS Receiving station at Worli location.	CC26NP033	30,00,000/-	2000/-

For additional technical details and Pre-Qualification criteria for the subject works please refer **Section C** below.

B. Guidelines for Participating:

Interested bidders having executed similar projects can participate by submitting the following up to **1500 hrs. Friday 12th December 2025**: -

1. Non-Refundable Tender Fee, as indicated in table above, in the form of Direct deposit in the following bank account and submit the receipt along with a covering letter clearly indicating the Tender Reference number.

Beneficiary Name – The Tata Power Co. Ltd.

Bank Name – HDFC Bank Ltd.

Branch Name – Fort Branch, Mumbai

Address – Maneckji Wadia Building, Nanik Motwani Marg, Fort, Mumbai 400023.

Branch Code – 60

Bank & Branch Code – 400240015

Account No – 00600110000763

Account type – CC

IFSC Code – HDFC0000060

2. Bidders to also submit duly signed and stamped letter indicating name of authorized person, contact number and e-mail id (mandatory) on Bidder's letterhead. It is mandatory to mention Tender Reference no. in the said letter.

Note: Once the above-mentioned documents are received, detailed RFQ shall be issued through our e-tender system (ARIBA).

It may be please noted that all future correspondence will be strictly done only with **Interested Bidders** who have done the above steps in time with Authorized Person only through Tata Power E-Tender System.

Earnest Money Deposit (EMD) of **INR 30.00 Lakh** is not to be submitted now and is required at a later stage along with tender submission in the form of Bank Guarantee.

Section C: Pre-Qualification requirement and Bill of Quantity: (Please refer the following pages for details).

Pre-Qualification Requirement-Construction of G+7 floor building for establishment of new 220KV/33KV GIS Receiving station at Worli location				
To be filled by Tata Power				To be filled up be Vendor
Sr No	Parameter	Tata Power Requirement	Documents to be submitted by vendor to ascertain meeting of Pre-Qualification Requirement	Vendor Submission against Tata Power PQR Requirement
1	2	3	4	5
1	Work experience	<p>The Bidder, either individually or in consortium, shall have successfully executed at least one similar project consisting of multi-storied high-rise RCC and/or composite structure buildings, with or without basement floor(s), having above G+7 storied during the last eight (8) years.</p> <p>Successful completion shall be substantiated with completion certificates issued by the client. Selected sub vendors will be subject to approval by Tata Power.</p> <p>The Bidder shall have experience in successfully completing, within the last eight (8) years as on the date of bid opening, a minimum of the following civil works in one project:</p> <ol style="list-style-type: none"> 1.Pile foundation works: 150 Nos. of piles of min 750mm dia 2.High-risk deep excavations: depth of 6 meters or more using shore piling. 3.RCC Works: 12,000 m3 4.Reinforcement steel: 2000 MT <p>In case the bidder has a previous association with any of Tata Power Group companies for similar products and services, the performance feedback of the bidder by the Tata Power Group companies shall only be considered for evaluation purpose, irrespective of performance certificates issued by any third organization.</p>	<p>Work completion certificate / PO.</p> <p>Bidder to submit credentials for supporting the noted criteria. Owner has the right to reject the bid in case it is observed that the Bidder does not meet the relevant experience for the subject works</p>	

2	Safety	<p>The said package being high risk service job .The Bidder will have to go through requirement Tata Power Skilled Development Institute (TPSDI) training for workmen, Certifications etc. 100% workmen shall be L1 & L2 and supervisor should be L3 trained & certified by Tata Power Skill Development Institute (TPSDI).</p> <p>Bidder should possess ISO-9001, ISO-14001 and OHSAS-18001 / ISO-45001 Certification or they should provide an undertaking that they will obtain these certifications for their organization if the work is awarded to them.</p>	<p>Bidder to submit credentials for supporting the noted criteria. Owner has the right to reject the bid in case it is observed that the Bidder does not meet the relevant experience for the subject works.</p> <p>List of TPSDI trained workmen OR undertaking for completion of training.</p>	
3	Commercial Capability	<p>Average Annual Turnover of the bidder for last three financial years shall not be less than INR 50 crore or last financial year turnover shall not be than INR 70 Crore.</p>	<p>Audited Profit & Loss statemnt along with UDIN No. to be attached.</p>	

220/33kV RECEIVING STATION AT BDD WORLI

BILL OF QUANTITIES - CIVIL, STRUCTURAL & ROAD WORKS

Sr. No.				Unit
I		EARTHWORK		
1		<p>Excavation below existing Ground Level in shored pile area for foundations, drains, compound wall and underground tanks or any other structure within the OWNER's Premises in ordinary earth, soft/weathered rock, which includes rock/boulders/slag/slate/laterite and gravel/ clay/ murrum of all kinds, rubble, concrete debris, scrap steel, clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., Includes all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within the OWNER's Premises and disposal of surplus earth beyond plot boundary in MCGM approved area etc. as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment for earth works shall be on net plan area of PCC. No payment will be made for side slopes, working area etc.</p> <p>The rate shall be inclusive of taking permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.</p>		
(i)	4135145	From existing ground level to a depth of 3 m	4053	M3
(ii)	4135146	Deeper than 3.0 m to a depth of 6 m	1847	M3
(iii)	4135147	Deeper than 6.0 m to a depth of 7.5 m	28	M3
2		<p>Excavation below existing Ground Level in shored pile areas for foundations, drains, compound wall and underground tanks or any other structure within the OWNER's Premises in hard rock by ordinary chiseling; clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within the OWNER's Premises and disposal of surplus earth beyond plot boundary in MCGM approved area etc. as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment for earth works shall be on net plan area of PCC. No payment will be made for side slopes, working area etc..</p> <p>The rate shall be inclusive of taking permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.</p>		
(i)	4135148	From existing ground level to a depth of 3 m	225	M3
(ii)	4135149	Deeper than 3.0 m to a depth of 6 m	103	M3
(iii)	4135150	Deeper than 6.0 m to a depth of 7.5 m	55	M3

3		Excavation below existing Ground Level for foundations, drains, compound wall and underground tanks or any other structure within the OWNER's Premises in hard rock by mechanical chiseling by pneumatic/hydraulic rock breaker; clearing away vegetation trees of all girth, bushes, underground roots, stumps etc., including all safety provisions, by providing adequate slopes using hard barricading as per OWNER's standards including careful handling of underground utilities etc., including backfilling as directed by the Owner, stacking and multiple handling of earth within the OWNER's Premises and disposal of surplus earth beyond plot boundary in MCGM approved area etc. as directed by Engineer-in-charge, including dewatering, preparing the bed for foundation etc. Payment for earth works shall be on net plan area of PCC. No payment will be made for side slopes, working area etc.. The rate shall be inclusive of taking permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.		
(i)	4135151	From existing ground level to a depth of 3 m	330	M3
(ii)	4135152	Deeper than 3.0 m to a depth of 6 m	1258	M3
(iii)	4135153	Deeper than 6.0 m to a depth of 7.5 m	22	M3
4		Providing, Supplying, Designing, Detailing, fabricating, transporting Metal shoring to site & erecting in position at all levels, alignment and final site welding/bolting of all structural components of shoring fabricated out of steel conforming IS 2062, IS specifications for any depth complete as directed by engineer in-charge. Vendor to submit design for shoring. Design of shoring shall be approved with Tata Power design team.	130	M2
		Providing, Supplying, Designing, Detailing, fabricating, transporting Wooden shoring to site & erecting in position at all levels, alignment and final site for any depth complete as directed by engineer in-charge. Vendor to submit design for shoring. Design of shoring shall be approved with Tata Power design team.	100	M2
5	4135154	Providing and filling in plinth and floors with good quality of murrum brought by the Contractor from outside in 15 to 20 cm thick layers including watering and consolidating so as to achieve compaction upto 95% of Standard Proctor Density, etc. complete in all aspects as directed by the Engineer-in-Charge.	1155	M3
6	4135155	Providing & laying dry trap granite/quartzite/gneiss/rubble stone soling with maximum 230mm size hard stone set in regular lines, hand packed and interstices thoroughly filled with small chips including filling in with good quality murum and compacted with 8 to 10 tonne rollers and spreading 12mm thick layer of grit on top, etc. complete in all aspects as directed by the Engineer-in-Charge.	330	M3

7	4135156	<p>Supplying and Providing pre-constructional anti-termite treatment, and creating a chemical barrier, under and on sides of trenches, wall footings, top surface of plinth filling, including junction of wall and floor along the perimeter of building, with approved emulsifiable insecticides at the rates and concentrations as per IS.6313 (Part-II) and as directed by Engineer. (Treated plinth area of the building at ground floor only shall be measured)</p> <p>(Contractor to submit guarantee on Rs. 1000 stamp paper, guaranteeing against termite attack for a period of 5 years.)</p>	1258	M2
8	4135157	<p>Dismantling and disposal of brick masonry at all levels and listing the scrap material as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, spreading and backfilling, etc.</p> <p>(Contractor to take permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)</p>	20	M3
9	4135158	<p>Dismantling and disposal of plain concrete at all levels and listing the scrap material as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, spreading and backfilling, etc.</p> <p>(Contractor to take permission from Collector/MCGM/concern authorities for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)</p>	20	M3
10	4135159	<p>Dismantling and disposal of reinforced cement concrete including reinforcement at all levels, listing the scrap material and returning the reinforcement steel to Owner's store at Dharavi/Tata Power store as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, spreading and backfilling, etc.</p> <p>(Contractor to take permission from Collector/MCGM/concern authorities for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)</p>	20	M3

11	4135160	Dismantling and disposal of structural steel, listing the scrap material and returning the structural steel to Owner's store at Dharavi/Tata Power store/Tata Power store as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, etc. (Contractor to take permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)	5	MT
12	4135161	Dismantling and disposal of rubble masonry above ground and listing the scrap material as and returning to Owner's store at Dharavi/Tata Power store as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, etc. (Contractor to take permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)	10	Cum
13	4135162	Dismantling and disposal of rubble soiling/ wall/ foundation below ground and listing the scrap material as and returning to Owner's store at Dharavi/Tata Power store as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge. The rate quoted shall be inclusive of factors like MCGM disposal, Royalty & Collector's permission, stacking, etc. (Contractor to take permission from Collector/MCGM or any other authorities beyond MCGM limit for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)	10	M3
14	4135163	Dismantling and disposal of Chainlink fencing with concertina and listing the scrap material and returning to Owner's store at Dharavi/Tata Power store as directed by the Engineer-in-Charge with all leads and lifts, etc. complete in all aspects as described and as directed by the Engineer-in-Charge.	2	MT
		Total for Earthwork		
II		CONCRETE AND ALLIED WORKS		

15	4135164	Providing and laying Ready Mix Concrete of M15 Grade using 20 mm downgraded aggregates above ground for coping to plinth or parapet, transomes and mullions, for protection of dowel bars of slabs, beams, columns, etc. moulded or chamfered as per drawing or as directed by the Engineer-in-Charge including shuttering, formwork, vibrating, compacting, curing, etc. complete for all lifts and levels.	154	M3
16	4135165	Providing and laying Ready Mix Concrete, M15 Grade using 20 mm downgraded aggregates below ground for blinding layer under R.C. foundation and bedding, bottom of pits, sumps, chambers, trenches, anchor blocks, rubble masonry and brick walls etc. as per drawing or as directed by the Engineer-in-Charge including vibrating, compacting, curing, shuttering if required, etc. complete.	171	M3
17		Providing and placing in position Ready Mix Concrete of M50 grade for all shapes, at all levels above or below ground including admixtures if any, centering, shuttering, scaffolding, vibrating, compacting, curing, dewatering, levelling, cutouts, openings, finishing, removal of formwork, etc. complete, for all lead and lifts, to obtain class F1 finish with leak proof concrete as per specifications/drawings and as directed by the Engineer- in-Charge for the following items (excluding reinforcement and structural steel):		
(i)	46042.0	All foundations including bottom slabs of trenches, Underground tanks, etc.	55	M3
(ii)	46010.0	Base raft , pile cap	641	M3
(iii)	45974.0	RCC columns, pedestals, brackets, shear walls	2037	M3
(iv)	45953.0	RCC slabs, staircase steps, waist slabs, beams, lintels, chajjas, etc	3517	M3
18		Providing and placing in position Ready Mix Concrete of M30 grade for all shapes, at all levels above or below ground including admixtures if any, centering, shuttering, scaffolding, vibrating, compacting, curing, dewatering, levelling, cutouts, openings, finishing, removal of formwork, etc. complete, for all lead and lifts, to obtain class F1 finish with leak proof concrete as per specifications/drawings and as directed by the Engineer- in-Charge for the following items (excluding reinforcement and structural steel):		
(i)	4135168	All foundations including bottom slabs of trenches, Underground tanks, pile caps, grade slabs, etc.	337	Cum
(ii)	4135169	Base raft,	225	Cum
(iii)	4135170	RCC columns, pedestals, brackets, walls	225	Cum
(iv)	4135171	RCC slabs, staircase steps, waist slabs, beams, lintels, chajjas, etc.	225	Cum
(v)	4135172	RCC sunshades, Architectural features like fins, pardi etc.	112	Cum
19		Providing and placing in position Machine Mix Concrete of M30 grade using digital weight batching for all shapes, at all levels above or below ground including admixtures if any, centering, shuttering, scaffolding, vibrating, compacting, curing, dewatering, levelling, cutouts, openings, finishing, removal of formwork, etc. complete, for all lead and lifts, to obtain class F1 finish with leak proof concrete as per specifications/drawings and as directed by the Engineer-in-Charge for the following items (excluding reinforcement and structural steel):		
(i)	4135173	All foundations including bottom slabs of tunnels, trenches, Underground tanks, pile caps, grade slabs, etc.	10	Cum
(ii)	4135174	Base raft	10	Cum
(iii)	4135175	RCC columns, pedestals, brackets, walls	10	Cum
(iv)	4135176	RCC slabs, staircase steps, waist slabs, beams, lintels, chajjas, etc.	10	Cum

(v)	4135177	RCC sunshades, Architectural features like fins, pardi etc.	10	Cum
20		Providing and placing in position Ready Mix Concrete of M25 grade for all shapes, at all levels above or below ground including admixtures if any, centering, shuttering, scaffolding, vibrating, compacting, curing, dewatering, levelling, cutouts, openings, finishing, removal of formwork, etc. complete, for all lead and lifts, to obtain class F1 finish with leak proof concrete as per specifications/drawings and as directed by the Engineer- in-Charge for the following items (excluding reinforcement and structural steel):		
(i)	4135178	All foundations including bottom slabs of tunnels, trenches, Underground tanks, pile caps, grade slabs, etc.	10	Cum
(ii)	4135179	RCC columns, pedestals, brackets, walls	10	Cum
(iii)	4135180	RCC slabs, staircase steps, waist slabs, beams, lintels, chajjas, etc.	10	Cum
(iv)	4135181	RCC sunshades, Architectural features like fins, pardi etc.	10	Cum
21	4135182	Supplying, Providing and erecting in position pre-cast concrete trench cover units of specified sizes and thickness using reinforced cement concrete of grade M25 with 20 mm down graded coarse aggregates and periphery flats of 3mm thick including form-work to give fair and smooth finish, casting, vibrating using surface vibrators, curing, storing, providing lifting arrangement, loading/ unloading, transporting, load testing etc. Complete as per specification and as directed by the Engineer.	31	Cum
22	4135183	Providing and fixing in position 25mm thick specifically extruded high performance polymer based sheet of supreme make in expansion joint, of minimum density 28 Kg/m ³ , using double sided adhesive of 2 mm x 25 mm x 25 mm at four places per m ² to the casted surface including applying & filling polysulphide based sealant with primer etc. complete, as per specifications/drawings and as directed by the Engineer-in-Charge.	25	Sqm
23	4207710	P/L Micro concrete Providing and laying of micro concrete, approved brand in proportion 1:1 with metal no.1 including mixing, waterproof shuttering, pouring, consolidating, scaffolding, curing as per MFG specifications, transportation at site, identification of leakage source, including dewatering of pits whenever required till completion of job etc complete as directed. (Measurement will be taken on consumption of micro concrete only, metal/aggregate will not be measured separately.)	2000	KG
24	4146005	Supplying all materials, applying crystalline water proofing system for concrete works applicable for bottom of RCC raft slabs, side walls of basement, cable trenches, tunnels, underground tanks, over head tanks, roof slabs, etc. including leakproof treatment by injection grouting in concrete members at 1.0m center to center distance in both directions and also at all construction joints. Contractor to provide a leak proof warranty for a period of minimum 10 years for all the concrete waterproofing works covered under this item. (Note: Concrete will be paid for M50 Grade & M30 Grade separately & . this item is only for adding crystalline waterproofing compound)	36873	Kg

25	4135193	Providing and applying 20mm thick (in two layers of 14mm and 6mm thick) smooth finished water proof plaster/bedding for the flooring and walls, in cement mortar 1:3 with waterproof admixture of approved quality and quantity to the internal/external surface of basement, cable trench, tunnels, underground tank, etc. including back trowelling as specified, providing chamfered corners (watas) for smooth finish of base plaster with plaster of vertical plaster, preparing the surface to receive the plaster, etc. complete on horizontal and vertical surfaces as directed by the Engineer-in-Charge. This entire area shall be leak proof and shall be gauranteed for a minimum period of 10 years.	1936	Sqm
26		Making holes/openings in brick wall (depth of hole not exceeding 450 mm) and finishing the same with plaster in CM 1:4 as directed by Engineer and at all locations and levels.		
(i)	4135343	Greater than 100 mm dia. But less than 300 mm dia. Or equivalent in area (with fire proofing brick).	20	No
(ii)	4135344	Greater than 300 mm dia. But less than 750 mm dia. Or equivalent in area (with fire proofing brick).	20	No
27		Drilling and/or making holes/ openings in reinforced concrete of any grade (depth of hole not exceeding 500 mm) and finishing the same with plaster in CM 1:4 in slabs, beams, columns, foundations, etc. Of existing/ already cast structures as directed by Engineer at all locations and levels.		
(i)	4135345	Greater than 50 mm dia. But less than 100 mm dia.	10	No
(ii)	4135346	Greater than 100 mm dia. But less than 300 mm dia.	10	No
28		Grouting of the bases of equipment / stanchions including anchor bolt pocket/ pipe sleeves etc. With premixed free flowing non-shrinking grout of the following strengths as per the manufacturer's instructions.		
(i)	4135347	Grout having a minimum strength of 30 N / mm ²	5	m ³
(ii)	4135348	Grout having a minimum strength of 45 N / mm ²	5	m ³
29	4135349	Providing and placing in position plum concrete of required thickness, at all depths with 33% boulders of size 150mm to 230mm and 67% Ready Mlx Concrete of M15 grade including shuttering, vibrating, compacting, curing, dewatering, levelling, finishing, removal of formwork, etc. complete as per specifications/drawings and as directed by the Engineer-in-Charge.	200	Cum
		Total for Concrete and Allied Works		
III		STEEL WORKS		
29(a)		STEEL WORKS "Supply, Cleaning, cutting, bending, as per drawings and placing in position High yield strength deformed reinforcement bars conforming to IS: 1786 at all locations and levels including binding with soft annealed 18G black wire, etc. Complete as shown on drawings and as directed by the Engineer (No payment will be made for staper bar, layer pin, chair, tie rods and other supports, binding wires, laps) a) For HYSD bars conforming to grade Fe 500D of IS 1786"	720	MT
29(b)		b) For HYSD CRS bars conforming to grade Fe 500 of IS 1786	480	MT

30	4135352	Providing structural steel work in rolled / builtup sections fixed with connecting plates or angles, gussets, cleats, channels as per drawings including cutting, fabricating, hoisting, erecting at all levels and locations, fixing in position, making welded/bolted connections and with two coats of zinc phosphate primer (One shop coat and one site coat & Paint DFT as per FQP) and painting with finishing coats of synthetic enamel paint to get desired finish, including scaffolding, preparation of surfaces, transporting, loading, unloading etc. complete as directed by the Engineer-in-Charge.	28	MT
31	4135353	Supplying, cutting, fabricating and erecting M.S. anchor bolts, pipe sleeves, channels, angles, plates, rails, beams and all other types of inserts in concrete members and placing them in position as specified on drawings at all locations and at all levels, etc. including two coats of approved oil paint over one coat of zinc phosphate primer with finishing coats of synthetic enamel paint to get desired finish over exposed surfaces, including scaffolding, preparation of surfaces, transporting, loading, unloading etc. complete as directed by the Engineer-in-Charge.	6	MT
32	4135354	Same as Item No. 31 but for GI Class -C pipe inserts.	2	MT
33	4135356	Providing and applying, 2 hrs Fire rated protection of specified thickness as per BS 5950-8:2003, using vermiculite or intumescent paint including necessary surface preparation, scaffolding, etc., complete as per specifications and as directed by the Engineer-in-Charge.	165	M2
34	4135357	Supplying, fabricating, delivering to site, loading, unloading, etc. and erecting chequered plate of diamond shape pattern including all operations but not limiting to such as straightening, cutting, drilling, grinding, welding (weight not included), making holes for lifting, cleaning and preparing surface by power tools and wire brushing and applying on the soffit of chequered plate one shop coat of zinc phosphate primer after fabrication and one coat of the same after erection and finishing coats of synthetic enamel paint of approved shade to get desired finish, etc. complete as per specifications and as directed by the Engineer-in-Charge.	6	MT
35		Providing and fixing the rebars of RE 500 of Hilti at required locations and levels including drilling the hole, etc. complete as directed by the Engineer-in-Charge.'		
(i)	4135358	10 dia	50	Nos
(ii)	4135359	12 dia	50	Nos
(iii)	4135360	16 dia	50	Nos

36	4135361	Supplying, laying and fixing of 0.55mm thick coloured galvolum sheeting system for roofing including all accessories such as ridge pieces, eaves, barge boards, expansion joint pieces, corner pieces, apron pieces, gutter, etc. with galvanised steel fasteners/bolts (of self-tapping type), seam, bolts and nuts, 8 mm dia. GI Limpet washers and bitumen washers, etc. complete including cutting to shape and size required including necessary sealants, taping, flashing, etc. complete as per design and specifications & colour as approved by Engineer-in-Charge, as specified on drawings at all locations and at all levels including scaffolding, preparation of surfaces, transporting, loading, unloading etc. complete as directed by the Engineer-in-Charge (Area measured as laid. No overlapping shall be paid. Bidder shall indicate the rate for laying and fixing).	5	M2
37	4135362	Same as item no. 36 but for Vertical and inclined side sheeting / Cladding.	5	M2
38	4135363	Providing and erecting Chain link fencing at specified loacations in the plot of 2.4 meter height with galvanized iron, chain link of size 50mm x 50mm, 8 gauge thick and fixed 75mm above ground level and vertical mild steel angles of 65 x 65 x 6 mm size embedded in cement concrete block of M15 mix of size 45 x 45 x 60 cm at 2.5m center to center with iron bar of 16mm dia. as hold-fast including welding link with angle frame with 30cm center to center, with pit excavation 45 x 45x 60 cm, nuts and bolts and horizontal mild steel angles at top and bottom of 25 x 25 x 5 mm size vertical mild steel flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both sides at interval of 7.5m & at every corner or bend embedded in concrete blocks of M15 mix of size 45 x 45 x 60 cm including three coats of oil paint, etc. complete.	44	MT
39	4135364	Providing and erecting Chain link fencing at specified loacations above compound walls, etc of 1.2 meter height with galvanized iron chain link of size 50mm x 50mm, 8 gauge thick and fixed 75mm above compound wall and vertical mild steel angles of 65 x 65 x 6 mm size embedded in cement concrete block of M15 mix of size 45 x 45 x 60 cm at 2.5m center to center with iron bar of 16mm dia. as hold-fast including welding link with angle frame with 30cm center to center, and horizontal mild steel angles at top and bottom of 25 x 25 x 5 mm size vertical mild steel flat 35 x 5 mm and 25 x 5 mm horizontal along with 600mm diameter concertina coil at top of chain link fencing, including three coats of oil paint, etc. complete.	156	Rmt
		Total For Steel Works		
IV		PILING WORKS		
40		Conducting accurate survey to locate all the working piles in the correct location and setting up of rotary/conventional boring/drilling rig at the location of the piles along with all the accessories.		
(i)	4135365	600mm dia piles	20	Nos.
(ii)	4135366	750mm dia piles	77	Nos.
(iii)	4135367	1000mm dia piles	40	Nos.

41		Boring/drilling through all kinds of soils using rotary rigs, using permanent liners to prevent side collapse, (to approximately a depth of 12 m from the existing ground level) and flushing the bore hole prior to concrete filling and all connected works. Rate quoted to include for carting away bored spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the approval from MCGM authority or any authority beyond MCGM limits and all related payments. Payment for permanent liners will be done separately under item no. 52 below.		
(i)	4135368	600 mm dia piles	240	M
(ii)	4135369	750mm dia piles	924	M
(iii)	4135370	1000mm dia piles	480	M
42		Same as Item 41 above but for boring/drilling through soft rock, highly weathered rock for socketing of pile to the pile termination level including all works as mentioned in Item 41 above.		
(i)	4135371	600 mm dia piles	72	M
(ii)	4135372	750mm dia piles	347	M
(iii)	4135373	1000mm dia piles	240	M
43		Forming concrete shaft of the pile from the termination level upto Design cut off level , using concrete grade M30 and 20 mm downgraded coarse aggregates, with minimum cementitious content of 400 kg of cement per cubic meter of concrete with water cement ratio limited to 0.45, and adding plasticizing admixture of approved brand to proportion recommended by the manufacturers to ensure proper flow of concrete and concreting through tremie pipes and all connected works. No additional payment will be made if concreting being carried out through concrete pumps. Payment for this item will be for concreting upto 700mm above cut off level only. Additional Payment will be made if concrete is carried out above 700mm as per design & Drawing in item below (Grade Level and cut off level will be as directed by the Engineer-in-charge/ Owner at Site)		
(i)	4135374	600 mm dia piles	312	M
(ii)	4135375	750mm dia piles	1271	M
(iii)	4135376	1000mm dia piles	720	M
		P/L M30 600mm pile GL to 700mm > cutoff "Forming concrete shaft same as mentioned above in item 43but from ground level to 700mm above pile cut-off level. 600 mm dia piles"	50	M
		P/L M30 750mm pile GL to 700mm > cutoff "Forming concrete shaft same as mentioned above in item 43but from ground level to 700mm above pile cut-off level. 750 mm dia piles"	50	M
		P/L M30 1000mm pile GL to 700mm > cutoff "Forming concrete shaft same as mentioned above in item 43but from ground level to 700mm above pile cut-off level. 1000 mm dia piles"	50	M

44		<p>Reinforcement for the piles, of Corrosion Resistant Steel (CRS), Fe 500D grade generally conforming to the requirements of IS: 1786, including procurement, storage, transportation, cleaning, cutting, bending, tack welding, of laps in the longitudinal bars and lateral steel to prevent disturbance during lowering of steel cage into the bore, tying the rods using binding wire of soft annealed black wire of 16 G, and placing the reinforcement cage into the bore hole to correct position etc. complete.</p> <p>No separate payment will be made for binding wires & lap length.</p> <p>No additional payment will be made for Ready made steel (i.e. cutting & Bending Out side premises or Factory made) including transportation</p>	267	MT
45		<p>Conducting low strain pile integrity test on all the working piles through a reputed specialised agency and submitting report on testing in their standard format. Test to be carried out at the pile cut off level. Item includes the necessary excavation and all other arrangement required for successful completion of the test.</p>		
(i)	4135381	600 dia piles	20	NO
(ii)	4135382	750mm dia piles	77	NO
(iii)	4135383	1000mm dia piles	40	NO
46	4135385	<p>Carrying out CHUM test for all diameter piles as per IS 14893:2001 including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc. all complete as per specification and as directed by the engineer in-charge.</p>	5	NO
47		<p>Carrying out routine vertical load test on single vertical pile to one and half times the working load including excavating the soil around the pile to cut off level, keeping the pit dewatered during the testing period, including making arrangements for testing such as structural steel frame work to support platform, kentledge etc jacks, measuring devices etc complete as required for testing and furnishing test results in standard format. Item includes the necessary excavation and all other arrangement required for successful completion of the test.</p>		
(i)	4135385	600 mm dia pile	1	Nos.
(ii)	4135386	750mm dia piles	1	Nos.
(iii)	4135387	1000mm dia piles	1	Nos.

48		Carrying horizontal load test on a pair of vertical working piles as per IS: 2911 (part IV) at cut off level of the piles after excavation around piles and keeping the excavated pit dewatered during the test. The rate shall cover providing necessary arrangements such as but not limited to jacks, measuring devices etc complete as required. (For this test two working piles shall be used and jacks provided in between. Both piles will be considered as test piles. Arrangement shall be made to record deflection etc of both the piles. However for payment purpose, testing of both the piles will be considered as one test only.) Rate shall also include furnishing of report on conclusion of test in standard format. Item includes the necessary excavation and all other arrangement required for successful completion of the test.		
(i)	4135388	600 mm dia pile	1	NO
(ii)	4135389	750mm dia piles	1	NO
(iii)	4135390	1000mm dia piles	1	NO
49		Rebate on item 41 for reduction in length of pile upto 8 m (from 12m to 8m.)		
(i)	46051	600 mm dia piles	10	M
(ii)	46044	750mm dia piles	10	M
(iii)	46052	1000mm dia piles	10	M
50		Carrying out high strain dynamic vertical load test on single vertical pile to one and half times the working load including excavating the soil around the pile to cut off level, keeping the pit dewatered during the testing period, including making arrangements for testing such as structural steel frame work to guide hammer, measuring devices etc complete as required for testing and furnishing test results in standard format. Item includes the necessary excavation and all other arrangement required for successful completion of the test.		
(i)	4135394	600 mm dia pile	1	NO
(ii)	4135395	750mm dia piles	1	NO
(iii)	4135396	1000mm dia piles	1	NO
51		Extra over item 41, for additional length of piles upto 20m (from 12m to 20m.)		
(i)	4135397	600 mm dia piles	10	M
(ii)	4135398	750mm dia piles	10	M
(iii)	4135399	1000mm dia piles	10	M
52	4135400	Detailing, supplying, fabricating, transporting and placing in position mild steel liner fabricated from 6mm thick plate conforming to IS 2062 grade A, all joints provided with full strength butt weld, and bottom edge chiselled for easy boring etc., complete as per drawing and per Engineer-in-Charge	220	TO
53	46000	Rebate on dismantling of liner above cut-off including taking away outside the OWNER's premises, transportation, etc. complete as directed by the Engineer, inclusive of obtaining the required permission.	35	MT
54	4135402	Conducting standard penetration tests in rock , during boring for initial test piles and the specified working piles, all as specified in Data Sheet A at every half metre interval and recording accurately the penetration corresponding to 100 blows at each test elevation.	100	NO

55		Chipping the exposed pile concrete carefully upto the cut off level of the pile to ensure sound concrete at cut off level and disposal of the spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC). For pile cutoff length from EL. (+) 0.00 to EL. (-) 2.00.		
(i)	4135403	600 mm dia piles	40	M
(ii)	4135404	750mm dia piles	154	M
(iii)	4135405	1000mm dia piles	80	M
56		Chipping the exposed pile concrete carefully upto the cut off level of the pile to ensure sound concrete at cut off level and disposal of the spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC) . For pile cutoff length from EL.(-) 2.00 to EL. (-) 4.00.		
(i)	4135406	600 mm dia piles	40	M

(ii)	4135407	750mm dia piles	154	M
(iii)	4135408	1000mm dia piles	80	M
57		Chipping the exposed pile concrete carefully upto the cut off level of the pile to ensure sound concrete at cut off level and disposal of the spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC) . For pile cutoff length from EL.(-) 4.00 to EL. (-) 8.00.		
(i)	4135409	600 mm dia piles	40	M
(ii)	4135410	750mm dia piles	154	M
(iii)	4135411	1000mm dia piles	80	M
		Total for Piling Works		

V

BILL OF QUANTITIES - CIVIL & STRUCTURAL WORKS FOR TEST PILE

58	45886	Mobilization, including transportation/ erection of all necessary plant equipment, piling/boring rigs, material to be furnished by CONTRACTOR, experienced personnel to site of work, etc. complete for the installation and testing of TEST PILES . It item is inclusive of demobilisation of the same from site after completion of work as per engineer in chagre	1	LS
59	4143470	Conducting accurate surveying to locate the test piles and setting up of piling/boring/drilling equipment with all accessories at the location of the test piles based on the reference points indicated by the Engineer In charge	2	EA
60		Boring/drilling through all kinds of soil using permanent liners to prevent side collapse to the pile termination level and tremie concreting the bore hole to the ground level using concrete grade M30 after lowering of reinforcement cage., using 20 mm down graded aggregate, using minimum of 400 kg of cement per cubic meter of concrete, limiting W.C. ratio to 0.45. adding plasticizing admixture of approved brand to proportion recommended by manufacturer to increase slump to ensure proper flow of concrete through tremie pipes, etc. complete. (Concreting shall be done up to ground level however payment for concrete shall be done up to 700 mm above cut off level. Reinforcement for cage shall be measured and paid under separate item) (Note: (Grade Level and cut off level will be as directed by the Engineer-in-charge/ Owner at Site) Flushing & tremie operations must be in accordance with the instructions of the experienced piling engineer & Geotechnical expert.		
a	45910	750 mm dia piles	35	M
b	45912	1000 mm dia pile	35	M

61		Extra over item 60 above for boring through soft/weathered rock for socketing of piles measured from where such socketing commences (Socket length in weathered disintegrated rock will be approximately two times the pile diameter or as shown in construction drawing). Start of rock socketing shall be taken when rock samples are obtained from pile holes or when pile penetration is less than 1.5m in 10 minutes of drilling. Piles can be terminated earlier with a minimum 1D rock socket if hard rock is encountered which makes it difficult for piling equipment to penetrate further. (i.e. pile penetration is less than 20cms in 10 minutes of drilling with a hydraulic rotary rig of minimum torque capacity of 130 KN-m). The termination of pile shall be guided by geotechnical expert of Contractor in co-ordination with Owner.		
a	45922	For 750 mm dia pile	10	M
b	45899	For 1000 mm dia pile	10	M
62		Extra over item 60 above for boring through hard rock for socketing of piles measured from where such socketing commences.		
a	45915	For 750 mm dia pile	3	RM
	45923	For 1000 mm dia pile	3	RM
63		Reinforcement for the piles, of Corrosion Resistant Steel (CRS), Fe 500D grade generally conforming to the requirements of IS: 1786, including procurement, storage, transportation, cleaning, cutting, bending, tack welding, of laps in the longitudinal bars and lateral steel to prevent disturbance during lowering of steel cage into the bore, tying the rods using binding wire of soft annealed black wire of 16 G, and placing the reinforcement cage into the bore hole to correct position etc. complete. No separate payment will be made for binding wires & lap length. No additional payment will be made for Ready made steel (i.e. cutting & Bending Out side premises or Factory made) including transportation	13.0	TO
64	4135400	Detailing, supplying, fabricating, transporting to the site and installation of mild steel casing pipe in bores , internal dia as mentioned below fabricated from 6mm thick plate conforming to IS 2062 grade A, all joints provided with full strength butt weld, and bottom edge chiseled for easy boring etc., complete.	14.0	TO
65	4143452	Carting away bored spoils to dumping area and spreading evenly as directed by ENGINEER outside the OWNER's premises. Rate to include Collector's permission & MCGM approval (DMC)	15	m ³
66		Conducting low strain pile integrity test on the test piles by owner approved reputed specialist agency and furnishing report in standard format.		
a	4135382	750 mm dia piles	2	Nos.
b	4135383	1000 dia piles	2	Nos.
67		Carrying out initial vertical load test on single vertical piles at cut off level of (-) 4 m to test load as mentioned below, including design of testing set up, furnishing all equipment and loading and measuring arrangements such as Jacks, measuring devices, structural frame for platform and kentledges etc. and carrying out the initial vertical load test on piles as per IS: 2911 part IV and submission of test report as per standard practice to assess the vertical load carrying capacity of piles etc. complete.		

a	45943	750 mm dia piles for test load of 588 ton	1	NO
b	45944	1000mm dia piles for test load of 1000Ton	1	NO
OR				
68		Carrying out initial vertical load test on single vertical piles using anchor piles at cut off level of (-) 4m to test load as mentioned below, including design of testing setup, furnishing all equipment and loading and measuring arrangements such as Jacks, measuring devices, anchor piles confirming to IS 10720 having minimum 150 mm dia with prestressed class II steel strands confirming to IS 14268, structural frame for loading, connection of steel strands with structural steel beams etc and carrying out the initial vertical load test on piles generally as per IS: 2911 part IV and submission of test report as per standard practice to assess the vertical load carrying capacity of piles etc complete. (Design of anchor plies and allied supporting structures will under the contracor's scope)		
a	45952	750 mm dia piles for test load of 588 ton	1	NO
b	45928	1000mm dia piles for test load of 1000Ton	1	NO
69		Excavation around test pile to cut off level of (-) 4m and conducting lateral load test on a pair of vertical piles at pile cut off level, including mobilizing all equipments, structural supports, jacks measuring devices etc. and conducting the test as per IS: 2911 part IV and submitting the test report as per standard practice to assess the horizontal load carrying capacity of piles etc. complete. Excavation and dewatering during testing will be paid for under separate item.		
a	45930	750 mm dia piles for test load of 15 ton	1	Nos.
b	45942	1000mm dia piles for test load of 26 ton	1	Nos.
70	45945	Excavation in all kinds of soil around test piles up to cut off level and keeping the excavation dewatered till completion of the tests and filling back the earth to the original ground profile and all connected works. Rate to also include disposal of the excess soil to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC).	50	m ³
71		Dismantling of the piles already tested, up to the pile cut off level and disposal of the spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC).		
a	45971	750 mm dia piles	9	M
b	45972	1000 mm dia piles	9	M
Total for Civil and Structural Works of Test pile				
VI SHORE PILING WORKS (including design)				
		Design, supply, and execution of shore piles shall form part of the Bidder's scope of work. The Bidder shall obtain approval of the design, methodology, and materials from the Owner before commencement of piling works. All works shall conform to relevant IS codes and project specifications.		

72		Boring/drilling through all kinds of soils for shore pile using rotary rigs, using permanent liners to prevent side collapse, (to approximately a depth of 12m from the existing ground level) and flushing the bore hole prior to concrete filling and all connected works. Rate quoted to include for carting away bored spoils to an area, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the approval from MCGM authority or any authority beyond MCGM limits and all related payments. Payment for permanent liners will be done separately.		
(i)	45936	300 mm dia piles	1953	M
(ii)	45947	600mm dia piles	325	M
73		Same as Item above but for boring/drilling through soft rock, highly weathered rock for socketing of pile to the pile termination level including all works as mentioned in Item 60 above.		
(i)	45985	300 mm dia piles	1953	M
(ii)	45996	600mm dia piles	325	M
74		Forming concrete shaft of the shore pile from the termination level upto Design cutoff level using concrete grade M30 and 20 mm downgraded coarse aggregates, with minimum cement content of 400 kg of cement per cubic meter of concrete with water cement ratio limited to 0.45, and adding plasticizing admixture of approved brand to proportion recommended by the manufacturers to ensure proper flow of concrete and concreting through tremie pipes and all connected works. All concreting should be done through concrete pumps only. Payment for this item will be for concreting upto 700mm above cut off level only. Additional Payment will be made if concrete is carried above 700mm as per design & Drawing in item below item		
(i)	45986	300 mm dia piles	3905	M
(ii)	46018	600mm dia piles	651	M
75		P/L M30 300mm pile GL to 700mm > cutoff "Forming concrete shaft same as mentioned above in item 43but from ground level to 700mm above pile cut-off level. 300 mm dia piles"	50	M
76		P/L M30 600mm pile GL to 7000mm > cutoff "Forming concrete shaft same as mentioned above in item 43but from ground level to 700mm above pile cut-off level. 600 mm dia piles"	50	M
77	46019	Reinforcement for the piles of Fe 500D grade generally conforming to the requirements of IS: 1786, including procurement, storage, transportation, cleaning, cutting, bending, tack welding, of laps in the longitudinal bars and lateral steel to prevent disturbance during lowering of steel cage into the bore, tying the rods using binding wire of soft annealed black wire of 16 G, and placing the reinforcement cage into the bore hole to correct position etc. complete. No separate payment will be made for binding wires & lap length. No additional payment will be made for Ready made steel (i.e. cutting & Bending Out side premises or Factory made) including transportation	127	Tonne
78		Rebate on item 72 for reduction in length of pile upto 6 m		
(i)	45968	300 mm dia piles	6	M
(ii)	46008	600mm dia piles	6	M

79	46024	Detailing, supplying, fabricating, transporting and placing in position mild steel liner fabricated as per thickness mentioned in approved drawing for shore pile conforming to IS 2062 grade A, all joints provided with full strength butt weld, and bottom edge chiselled for easy boring etc., complete as per drawing and per Engineer-in-Charge	135	MT
80	45999	Rebate on dismantling of liner above cut-off for shore pile including taking away outside the OWNER's premises, transportation, etc. complete as directed by the Engineer, inclusive of obtaining the required permission.	7	MT
81		Chipping the exposed shore pile concrete carefully upto the cut off level of the pile to ensure sound concrete at cut off level and disposal of the spoils to an area at all levels below ground, as directed by the Engineer, outside the OWNER's premises inclusive of obtaining the Collector's permission and MCGM approval (DMC) .		
(i)	46009	300 mm dia piles	293	RM
(ii)	46041	600mm dia piles	46	RM
		Total of Shore piling		
VII		INTERNAL ROADS AND STORM WATER DRAINS		
82	4137388	Excavation in ordinary earth, soft & decomposed rock which include rock/boulders/slag/slate/laterite, sand/gravel/clay/murum, rubble of all kinds; including all safety provisions by providing shoring and strutting, removal of vegetation, shrubs, royalty, etc., removal and disposal of excavated material from the site, temporary stacking of selected earth and its multiple handling and spreading within the internal premises as directed by the Engineer-in-Charge, including dewatering, foundation bed preparation, backfilling and compaction, disposal of materials beyond plot boundary in MCGM approved area etc. complete in all aspects as described and as directed by the Engineer-in-Charge. (Contractor to take permission from Collector/MCGM/concern authorities for the dumping place in consultation with the Municipal and/or other Local Authorities & Debris Management Cell. Contractor should ensure that this disposal cause no nuisance to the residents of town. Disposal is at the risk and cost of the Contractor.)	154	M3
83	4135419	Providing and laying good quality murrum in embankment and or filling in layers not exceeding 25 cm in loose thickness and compacting each layer with a 10/12 tonne power roller to 95% of Standard Proctor Density including levelling, watering, etc. complete in conformity with a required grades, lines and cross sections, etc. complete as directed by Engineer-in Charge.	52	M3
84		Providing and laying RCC NP3 class Hume pipe with collar joint including jointing and filleting in 1:4 C.M, including plugging of both the ends with gunny bags, brick masonry in C.M 1:4 with plaster in C.M. 1:4 and curing, etc. complete as specified and as directed by Engineer-in-Charge. (All the pipes supplied shall confirm to relevant IS codes. The Contractor shall also arrange to get the pipes tested in accordance with tests specified in IS 3597:1985 at Contractor's cost and as directed. Testing shall be carried out in presence of Engineer-in-Charge. Laying of pipes shall be carried out as per IS 783 including all leads and lifts, etc. complete as directed by Engineer-in-Charge.		

(i)		150 mm dia	15	M
(ii)		250 mm dia	25	M
(iii)		300 mm dia	25	M
(iv)		450 mm dia	25	M
(v)		600 mm dia	25	M
(vi)		900 mm dia	10	M
85	4135427	Constructing water entrances of size 0.45 x 0.45 m (clear opening) for any depth with cast in situ coping haunches in M15 fixing of M.S. Jali in M20, etc. complete with M.S. galvanised hinged type grating (not less than 53 Kgs) including excavation, etc. complete with all lead and lifts as directed by Engineer-in-Charge.	5	NO
86	4135429	Providing rubble filling of trap stones of approved quality in foundations including sand packing and filling gravel in the voids, etc. complete as directed by Engineer-in-Charge.	62	M3
87				
88	4135431	Providing, laying, spreading and compacting specified Granular Sub-Base consisting of materials like natural sand, murum, gravel, crushed stone or combination thereof in sub base course (Grade II of GSB (Table 400-1) including premixing at OMC carriage of material, spreading in uniform layers as specified in drawings or as directed by the ENGINEER, and compacting with power vibratory roller to achieve the specified density, etc complete in all respect and as per MORTH (IV R) Clause 401).	64	Cum
89	4135432	Providing, laying, spreading & compacting specified graded stone aggregates to wet mix macadam specification including premixing the material at OMC in mechanical mixer (pug mill), carriage of mixed material, by tipper to site, laying in uniform layers of specified thickness in sub base / base course on a well prepared sub grade / sub base by mechanical pavers and compacting with power vibratory roller to achieve the desired density [including all materials, labour, machinery, lighting, guarding, barricading and maintenance of diversion etc. complete, in all respect as per MORTH (IV R) Clause 406.	64	Cum
90	4246044	Providing and laying in position plain cement nominal mix concrete with 40 mm down graded coarse aggregates including providing side shuttering as required, placing compacting curing etc complete including expenses towards dewatering etc complete all as per specification and as directed by ENGINEER. Concrete grade M15 in paving for base course below R.C.C roads (DLC layer of 100 mm thick), plinth protection etc.	23	M3
91	4246045	Providing and laying 125 micron thick PVL layer above DLC layer and below the R.C.C wearing layer including providing 300 mm lapping etc complete.	234	M2
92	4246046	Providing and placing in position to correct profile R.C.C. wearing course 300mm of concrete grade M35 using 20mm down graded aggregates and limiting water cement ratio to 0.45 for rigid paving for approach roads etc including provision of side shuttering vibrating, curing, including providing contraction and construction joints. (to be paid separately) etc complete in all respects.	70	Cum
93	4246047	Providing construction joint in concrete roads as per detail 'A'S of IRC 15, including providing groove in concrete, soft rope back up, 5 mm thick compressive debonding strip and 15mm x 12mm polysulphide sealant and all connected works.	50	M

94	4096656	Providing and fixing concrete pre-cast kerb stone of size as shown in drawings for verges of specified size & shape in M20 grade concrete including excavation and backfilling in all type of strata and laid over a base cement mortar and including pointing, curing, preparation of surface, painting, etc. complete as directed and as per MORTH (IV R) Clause 408.	83	M
		Total For Road Works		
VIII		MISCELLNEOUS WORKS		
95	4135438	Providing, aligning and fixing in position rail section as per IRS (52kg/m) in concrete works/others area to correct lines and levels as per drawings including Anchor bolts, Base plates inserts etc complete.	6	MT
96	4135439	Providing and filling (40 - 65mm) Metal in Transformer and oil cooler foundation, soak pits with all materials, labour, tools, tackles and equipments with all carting, lifting loading, unloading etc. complete as directed and instructed by the Engineer-in-Charge.	312	M3
97	4135441	Excavating trial pits of size 1.5m x 1.5 m and 1.5 m to 2m deep at column locations with necessary shoring, dewatering as required, etc. complete alongwith backfilling of trial pits.	10	NO
98	4135442	Providing and laying Hilti fire stop material CP 636 for sealing of cable opening in basement and other location.	5	M2
99		Providing, Supplying, placing, aligning, fixing and testing in position high density polyethylene pipes of approved manufacture conforming to Series II of IS:4984 with all types of fittings (readymade or fabricated) including jointing using butt welding etc complete with a working pressure of 6 kg/cm ² for the following diameters at locations as indicated on drawings: (Excavation and backfilling shall be paid under relevant item).		
(i)	4135443	OD 110 mm	10	Rmt
(ii)	4135444	OD 160 mm	10	Rmt
(iii)	4135445	OD 200 mm	10	Rmt
(iv)	4135446	OD 250 mm	10	Rmt
100		Providing, supplying and laying in position GI conduits medium grade in concrete slab, beams, foundations all as per drawings and specification or as directed by Engineer.		
(i)	4135447	a) 25 mm	2	M
(ii)	4135448	b) 32 mm	2	M
(iii)	4135449	c) 50 mm	2	M
(iv)	4135450	d) 63.5 mm	2	M
(v)	4135451	e) 80 mm	2	M
101		Supplying and fixing anchor fasteners HST-R of HILTI make in RC beams, columns and slabs including scaffolding, drilling holes etc. Complete as per manufacturer's specification and as directed by the Engineer.		
(i)	4135452	12 mm dia.	20	NO
(ii)	4135453	16 mm dia.	20	NO
(iii)	4135454	20 mm dia.	20	No
		Total For Miscellaneous works		
		Grand Total for Civil, Structural and Road Works		

BILL OF QUANTITIES - ARCHITECTURAL WORKS				
Sr. No.		Description of Item	Quantity	Unit
I		General Building Works		
A		MASONARY, PLASTER, WATER PROOFING AND ALLIED WORK		
1	4135902	Providing Brick Masonry, 230 mm thick and above, in cement mortar 1:5 (1 cement : 5 coarse sand) using best quality locally available first class kiln bricks having crushing strength of 35 Kg/sqcm and water absorption not more than 20%, at all levels in foundation, plinth and steps including dewatering, scaffolding, raking of joints, curing, etc. complete.	50	M3
2	4135903	Providing Flyash Block Masonry (Charbhuj Infrastructure make or equivalent make), 190 mm thick and above in cement mortar 1:5 (1 cement: 5 coarse sand) using best quality locally available flyash blocks having crushing strength of 50 Kg/sqcm and water absorption not more than 10%, at all levels in foundation, plinth and steps including dewatering, scaffolding, raking of joints, curing, etc. complete.	50	M3
3	4135904	Providing Brick Masonry, 230 mm thick and above, in cement mortar 1:5 (1 cement: 5 coarse sand) using best quality locally available first class kiln bricks having crushing strength of 50 Kg/sqcm and water absorption not more than 20%, in superstructure for walls, parapets, etc. , at all levels and locations, including scaffolding, curing, raking of joints, providing RCC transomes and mullions of grade M15 including shuttering, etc. complete. (reinforcement and concrete for transomes and mullions shall be paid separately in respective items)	1,200	M3
4	4135905	Providing Flyash Block Masonry (Charbhuj Infrastructure make or equivalent make), 190 mm thick and above in cement mortar 1:5 (1 cement: 5 coarse sand) using best quality locally available flyash blocks having crushing strength of 50 Kg/sqcm and water absorption not more than 10%, in superstructure for walls, parapets, etc., at all levels, including scaffolding, curing, raking of joints, providing RCC transomes and mullions of grade M15 including shuttering, etc. complete. (reinforcement and concrete for transomes and mullions shall be paid separately in respective items)	1,300	M3
5	4135906	Providing Brick Masonry 115 mm thick in cement mortar 1:4 (1 cement : 4 coarse sand) using best quality locally available first class kiln bricks having crushing strength of 35 Kg/sqcm and water absorption not more than 20%, in superstructure for walls, parapets, etc., at all levels including scaffolding, curing, raking of joints, providing RCC transoms and mullions of grade M15 including shuttering, etc. complete. (reinforcement and concrete for transoms and mullions shall be paid separately in respective items)	130	M2
6	4135907	Providing Block Masonry (Charbhuj Infrastructure make or equivalent make) 110 mm thick in cement mortar 1:4 (1 cement : 4 coarse sand) using best quality locally available first class kiln blocks having crushing strength of 50 Kg/sqcm and water absorption not more than 10%, in superstructure for walls, parapets, etc., at all levels including scaffolding, curing, raking of joints, providing RCC transomes and mullions of grade M15 including shuttering, etc. complete. (reinforcement and concrete for transomes and mullions shall be paid separately in respective items)	130	M2
	4135910	Providing and laying integral cement based water proofing treatment with China Mosaic finish including preparation of surface as required for treatment of roofs, balconies, terraces, RC gutters, etc. consisting of following operations.		

7		(a) Applying and grouting a slurry coat of neat cement using 2.75 kg/m ² of cement admixed with proprietary water proofing compound conforming to IS: 2645 over the RCC slab including cleaning the surface before treatment.	440	M2
		(b) Laying cement concrete using broken bricks/brick bats 25 mm to 100 mm size 50% of cement mortar 1:5 (1 cement:5 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 over 20 mm thick layer of cement mortar of mix 1:5 (1 cement: 5 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.		
		(c) After two days of proper curing applying a second coat of cement slurry admixed with proprietary water proofing compound conforming to IS: 2645.		
		(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement 4 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 and finally finishing the surface with trowel with neat cement slurry and making of 300 mm x 300 mm square where required or preparing the surface to receive tiles on it with Drip mould in cement mortar at the junction of plaster and parapet.		
		(e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. .		
		(f) Finally finishing top with fixing assorted pieces of glazed tiles on a layer of neat cement grout 10 mm thk, properly tamping to the required grade including curing, cleaning with dilute acid, etc. complete.		
		(g) All above operations to be done in order and as directed and specified by the Engineer-in-Charge. Contractor shall give 10 years guarantee on court fee stamp paper of Rs. 1000/-.		
		(h) With average thickness of 150 mm and minimum thickness at Khurra as 75 mm.		
8	4135911	Same as item no. 7 but 50mm thick IPS instead of China mosaic	440	M2
9		Providing and laying water proofing treatment in sunken portion of WCs, bathrooms, etc. , by applying cement slurry mixed with Armourcrete of M/s The Structural Water Proofing Company Pvt. Ltd. or Tapecrete of M/s. CICO Engg. Service or approved equivalent consisting of applying :	19	M2
	4135912	(a) First layer of slurry of cement @0.488 kg/sqm mixed with Armourcrete or Tapecrete @ 0.253 kg/sqm. This layer shall be allowed to air cure for 4 hours.		
		(b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with Armourcrete or Tapecrete @ 0.126 kg/sqm. This layer shall be allowed to air cure for 4 hours followed with water curing for 48 hours.		
		(c) All above operations to be done in order and as directed and specified by the Engineer-in-Charge. Contractor shall give 10 years guarantee on court fee stamp paper of Rs. 1000/-.		
		The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.		

10	4135913	Providing and laying brickbat coba in sunken portion of WCs, bathrooms , etc., consisting of one part of cement, 2 parts of broken brickbats varying from 12 mm to 25 mm thick and one part of lime mortar (one part of lime to two parts of sand) as specified including preparing the surface by applying and grouting a slurry coat of neat cement using 2.75 kg/m ² of cement admixed with proprietary water proofing compound conforming to IS: 2645 over the RCC slab including cleaning the surface before treatment, necessary watering, ramming, etc. all complete (Rate shall include wattas, finishing, etc.) (Thk/Depth upto 250mm.). All above operations to be done in order and as directed and specified by the Engineer-in-Charge. Contractor shall give 10 years guarantee on court fee stamp paper of Rs. 1000/-.	19	M2
11	4135914	Providing internal cement plaster 6 mm thick to ceiling in a single coat in cement mortar 1:4 to rough/fair concrete surface, in all positions with hacking, surface preparation, including scaffolding, curing, grooves, bands, drip moulds, etc. complete.	5,715	M2
12	4135915	Providing internal cement plaster 12 mm thick plain finish in single coat in cement mortar 1:4 with hacking, surface preparation, including scaffolding and curing, grooves, bands, drip moulds, including providing and fixing chicken mesh of 22 gauge, with about 15 cm width of approved quality at the junction of reinforced cement concrete members and brick work, including fixing mesh in position by necessary drilling in concrete/ B.B masonry, etc. complete.	18,417	M2
13	4135916	Providing & applying 20 mm thick external sand faced plaster in cement mortar 1:4 using addition of integral water proofing compound 100% virgin polypropylene fibrillated fibres @125 gm/bag of cement as per manufacturer's specifications waterproofing compound of approved make as per the manufacturer's specifications, in two layers (first layer of 14 mm thickness and the second layer of 6 mm thickness) on all types of external surfaces using coarse, clean sand including surface preparation, curing both the coats, bends, grooves, drip moulds and all scaffolding, curing, including providing and fixing chicken mesh of 22 gauge, with about 15 cm. width of approved quality at the junction of reinforced cement concrete members and brick work, including fixing mesh in position by necessary drilling in concrete/ B.B masonry, etc. complete.	5,331	M2
B		FLOORING, DADO		
14	4135917	Providing and laying 50 mm thick heavy duty Ironite floor finish of 1mx1m panel size with Ironite hardener topping, under layer of 38 mm thick cement concrete of grade M25 and top layer of 12 mm thick Metallic concrete of mix 1:2 (1 cement hardener mix : 2 stone aggregate 6 mm nominal size) by volume with metallic hardening compound of approved quality mixed as per manufacturer's recommendation including cement slurry, side shuttering, rounding off edges and glass strips of 12mm heigh x 5mm thick in required panels, etc. complete.	1,279	M2
15	4135918	Same as above but the top 5 mm thickness shall be Heavy duty chemical and abrasion resistant epoxy resin floor screed Nito floor TF 30 topped with Nito floor FC 150, manufactured by M/S Fosroc or its approved equivalent for operating floor including all connected works as per manufacturer recommendations	2,686	M2
16	4135919	Same as above but without ironite hardener	6	M2
17	4206151	CISE, Providing supplying and application of dielectric flooring of 2mm Thick including surface preparation, repairing to construction joint, crack sealing, pothole ceiling, etc. of min. current resistance of 45kV as per BDV requirements	1,279	Sqm

18	4135920	Providing and laying ordinary polish Kota of approved quality minimum 25 mm thick in plain or diamond pattern on 1:4 cement mortar (1 cement : 4 course sand) bedding to give an overall thickness of 50 mm including cement float, filling joints with neat cement slurry mixed with pigment to match shade of kota stone, curing, rubbing, machine polishing and cleaning complete at all levels.(Size shall not be less than 600 mm x 600 mm) in floors.	17	M2
19	4135921	Providing and laying in required position dado or skirting or risers of kota of quality and colour as approved by Owner having a minimum thickness of 25 mm on 12 mm (average) thick, 1:3 cement mortar (1 cement : 3 course sand) bedding including filling joints with neat cement slurry mixed with matching colour pigment, curing, rubbing, hand polishing and cleaning complete at all levels.	990	M2
20	4135922	Providing and laying granite in floor of quality and colour as approved by Owner having a minimum thickness of 20 mm in plain or diamond pattern on 1:4 cement mortar (1 cement : 4 course sand) bedding to give an overall thickness of 50 mm including cement float, filling joints with neat cement slurry mixed with matching colour pigment, curing, rubbing, machine polishing and cleaning complete at all levels.	421	M2
21	4135923	Providing and laying in required position dado or skirting of granite of quality and colour as approved by Owner having a minimum thickness of 20 mm on 12 mm (average) thick, 1:3 cement mortar (1 cement : 3 course sand) bedding including filling joints with neat cement slurry mixed with matching colour pigment, curing, rubbing, hand polishing and cleaning complete at all levels.	55	M2
22	4135924	Providing and laying polished granite of colour as approved by Owner having a minimum thickness of 20 mm in treads of steps and staircase in one piece with rounded nosing and 3 Nos of anti skid grooves on 1:4 cement mortar (1 cement : 4 course sand) bedding to give an overall thickness of 50 mm including cement float, filling joints with neat cement slurry mixed with pigment to match shade of white marble , curing, rubbing, polishing and cleaning complete at all levels.	370	M2
23	4135925	Providing and laying polished kota of colour as approved by Owner having a minimum thickness of 20 mm in treads of steps and staircase in one piece with rounded nosing and 3 Nos of anti skid grooves on 1:4 cement mortar (1 cement : 4 course sand) bedding to give an overall thickness of 50 mm including cement float, filling joints with neat cement slurry mixed with pigment to match shade of white marble , curing, rubbing, polishing and cleaning complete at all levels.	17	M2
24	4135926	Providing and laying 10 mm thick Acid Alakali resistant Tile of Johnson Endura ivory approved by owner Ivory colour using acid resistant mortar bedding and joints filled with acid resistant cement as per IS : 4457 on mortar 1:4 (1 appropriate cement : 4 course sand) bedding to give an overall thickness of 50 mm including, curing and cleaning complete at all levels.	540	M2
25	4135927	Providing and laying 10 mm thick Acid Alakali resistant Tile Dado of Johnson Endura ivory make approved by owner, Ivory colour using acid resistant mortar bedding and joints filled with acid resistant cement as per IS : 4457 on 12 mm thick mortar 1:4 (1 appropriate cement : 4 course sand) bedding including, curing and cleaning complete at all levels.	568	M2
26		Providing and fixing 12 mm thick Double Charged Vitrified Tiles of Nitco / Kajaria approved quality and shade in flooring and skirting , on a 20 mm thick bedding of 1:3 cement mortar and jointed with white/ coloured cement slurry, cutting of tiles to required size, cleaning, curing, etc. complete.		Sqm
(i)	4310607	For 800X800	647	M2
(iv)	4135929	For 600x600	647	M2

27		Providing and fixing 10 mm thick Ceramic Glossy finish tiles of Nitco / Kajaria approved quality and shade in dado on a 20 mm thick bedding of 1:3 cement mortar and jointed with white/ coloured cement slurry, cutting of tiles to required size, cleaning, curing, etc. complete.		
(i)	4135930	for 600x600	77	M2
(ii)	4135931	for 450x300	77	M2
(iii)	4135932	for300x600	77	M2
28		same as point no 24 but for Glazed Vitrified tiles in dado		
(i)	4310618	for 600x600	77	M2
(ii)	4135934	for 450x300	77	M2
(iii)	4135935	for300x600	77	M2
29	4135936	Providing and laying for flooring, Antiskid Vitrified Tile 600 mm x 600 mm x 12 mm thick of Nitco / Kajaria approved quality and shade in required position on 20 mm thick 1:4 cement mortar bedding including cement float, filling joints with white/ coloured cement slurry, cutting of tiles to required size, cleaning, curing, finished to line, length and slope as required, etc. complete.	33	M2
30	4135937	Providing and fixing Anti static false flooring 300 mm high with load bearing capacity of 1200 kg concentrated load and 2000 kg /sqm distributed load, of Unatile Everest . a) pedestal supports made of 25 od, 1.5 mm thk MS seamless pipe welded vertically at the centre of 100 x 100 x 3 mm thick die pressed MS base plate with hard PVC bushing on top free end. b) Jack heads made of pressure die cast, galvanised, square , 2 mm the MS sheet, with 4 Nos 2 x 10 mm die cut notches, 90 degrees apart, to hold the stringers. And with a centrally welded M16 x100 mm stud with nut for level adjustment up to +/- 25 mm. c) Stringers made out of die pressed channels 25x25x25 mm with two die pressed notches at the two ends to snap fit to the jack head. d) Truly levelled and aligned removable composite floor panels of 610 x 610 x 31 mm made of 1.5 mm thick MS die formed bottom tray, 1.5 mm thick top plate with cavity filled with specially designed light weight concrete. e) The top surface shall be finished with non combustible high pressure laminate antistatic tiles conforming to BS-2050 of 1998 table III Including making steps including treads and risers or ramp, making openings/ cutouts, levelling, cutting, drilling, cleaning, etc. complete.	220	M2
31	4135938	Same as above but 600 mm high	440	M2
32	4135940	Providing and laying 60mm thick precast concrete Paver Blocks having compressive strength not less than 30N/mm2 of approved, make, pattern, colour, over a layer of sand with necessary compaction etc complete at the locations shown in drawings including concrete kerbing wherever required all executed as per relevant IRC specifications & IS:15658 and directions of the Engineer	330	M2
33	4135941	same as above but GRASS PAVERS	55	M2
C		FINISHES, PAINTING		
34	4304447	Providing and applying wall punning up to 12mm thick with approved white cement-based putty, including surface preparation, application of Bond Aid, fixing Jali tape at joints and cracks, maintaining plumb line and proper kat kona (corners), forming grooves above skirting, and finishing to a smooth, even surface ready for painting. The rate shall include cost of all materials, labour, scaffolding, protection of adjoining surfaces, cleaning, and all incidental works complete as directed by the Engineer-in-Charge.	12,472	Sqm

35	4135943	Providing and applying cement based Birla White putty in two coats over a plastered surface to give a smooth levelled finish to receive paint. Surface to be pre-wetted and made free of any loose particles and stains etc. The cost shall include all labour, materials, etc complete.	6,905	M2
36	4243902	Providing & applying one coat of Dura life base coat/or equivalent followed by two top coats of ULTIMA PROTEK of Asian paints/or equivalent on all exterior surfaces at all levels, including Cleaning of surface with jet cleaning machine(Bio wash), Opening the Cracks in v groove shape, Filling up the cracks with Crack seal Compound, curing, all scaffolding , etc., complete as per manufacturer's specifications and as directed by the Engineer in-charge. Vendor to submit Paints waterproofing warranty for 10 years and paint performance warranty for 10 years from Asian Paints.	4,612	M2
37	4135946	Providing and applying two coats of first quality Acrylic washable internal paint of approved colour and shade over one coat of primer, including scaffolding, preparing the surface to receive the primer and finishing coats complete.	12,472	M2
38	4135947	Providing and applying two coats of first quality Oil Bound Distemper internal paint of approved colour and shade over one coat of primer, including scaffolding, preparing the surface to receive the primer and finishing coats complete.	5,715	M2
39	4135948	Providing and applying 2 or more coats of acid/alkali resistant chlorinated rubber paint of Asian or equivalent and of approved colour to walls and ceiling of battery room. 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, complete as per specifications.	4,777	M2
40	4135949	Providing and fixing 15 mm thick black granite on window sill 20 mm thick cement mortar 1:3 including polishing to exposed edges, cement float, filling joints with neat cement slurry mixed with pigment to match shade of marble, raking and finishing the joints with silicon sealant, curing, rubbing, polishing and cleaning complete at all levels 2nos in steps with minimum 50mm overlapping and maximum of 300mm width in combination.	238	M
41	4135950	Providing and fixing 15 mm thick black granite on all four sides opening in step fashion 20 mm thick cement mortar 1:3 including polishing to exposed edges, cement float, filling joints with neat cement slurry mixed with pigment to match shade of marble, raking and finishing the joints with silicon sealant, curing, rubbing, polishing and cleaning complete at all levels 2nos in steps with minimum 50mm overlapping and maximum of 300mm width in combination.	871	M
42	4135951	Providing and fixing in position pantry platform 675 mm deep and 820 mm high consisting of 50 mm thick sandwiched Kadappa verticals with 25 mm thick horizontal Kadappa shelves , 20 mm thick black Granite for counter top over 40 mm thick Kadappa stone slab with 20 mm thick jambs and facial patti with nosing in polished Granite, (all Kadappa stone slabs shall be single polished) including making chases in walls and floor and finishing neat with cement mortar 1:2 and including providing supporting arrangement with Kadappa stone slab and mortar filling for Stainless Steel sink, all complete as directed by Engineer-in -Charge. All exposed edges of Kadappa and Granite to be polished to the satisfaction of the Engineer as per the design (Supply and fixing of Stainless Sink sink shall be paid separately).	3	M2

43	4310616	Washbasin countet nanowhite P/L wash basin Platform P/L wash basin platform with Indian marble at base and verticle supports with 18 mm thk Nanowhite top with zero joints and matching facia with necessary cement mortar bedding and floating with matching colour cement, curing, polishing, cleaning etc. or cutting grooves in walls, half round moulding & redoing in CM (1:3) complete.	10	M2
44	4135952	Supplying and fixing fan hooks made of 12 mm diameter Mild Steel (MS) rod of 1000 mm length including necessary bend, etc. complete.	22	NO
D		DOORS, WINDOWS AND PARTITION		
		Rate quoted shall be inclusive of All hardwares, fixtures and fittings along with all finishing paints / polish / coatings etc. of make approved by engineer in charge complete.		
		For Fire rated doors, it shall be ensured that the overall integrity and performance is maintained, together for the complete assembly of Frames, shutters and Hard wares.		
		Bidders shall submit Hardware schedules for different types of doors along with the bid offers.		
45		UPVC Window: P/F factory made white UN-Plasticized poly Vinyl chloride (UPVC) windows(FENESTA or Equivalent as approved by site in charge) at all levels made out ofextruded three chambered profile frame with hermetically sealed double glazedglass customized in 56mm wide system ,all fittings and fixing at site andsealing the gaps etc. as per the designed and as directed by site in charge.		
	4259679	i) Operable	83	M2
	4259678	iii) Fixed	83	M2
46	4136577	Providing and fixing Anodized aluminium work for ventilators with extruded built up standard tubular and other sections of approved make conforming to IS: 733 and IS: 1285, anodised transparent or dyed to required shade according to IS: 1868. (Minimum coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion hold fastners including filling the gaps between opening and aluminium frame with silicon sealant or poly-sulphide sealant as directed, necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ Neoprene felt, with toughened glass, etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/ panelling, with figured glass louvers C P brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer.	6	M2
47	4136578	Same as above but with 50 microns thk.powder coated	6	M2
48	4136579	Providing and fixing aluminium work for partitions Fully glazed with min 6 mm thick with toughened sheet glass with extruded built up standard tubular and other sections of approved make conforming to IS: 733 and IS: 1285,with 50 microns thk. powder coated fixed with rawl plugs and screws or with fixing clips or with expansion hold fastners including filling the gaps between opening and aluminium frame with silicon sealant or poly-sulphide sealant as directed, necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ Neoprene felt, etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/ panelling, C P brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer.	77	M2

49	4136581	Same as above but with anodised Fully glazed with min 6 mm thick toughened sheet glass transparent or dyed to required shade according to IS: 1868. (Minimum coating of grade AC 15),	138	M
50	4136583	Providing and fixing Z Louvers in Plain Panel of approved colour consisting of panel 0.6mm thick with round edges panel length up to 6mtrs coil coated on a continuous paint line double baked and roll formed from enamelled corrosion Resistance Aluminium Alloy AA3005 (Al.Mg.) for higher strength and good Roll forming characteristics. Panels shall be clipped at a distance of 86 mm to baked enameled Aluminium panel stringer 33mm wide and 86mm deep x 0.95 mm thick in a standard length of 5mtrs made of double baked enameled Aluminum Alloy AA5050 (Al.Mg.) white to hold the panel in a module of 86mm centre to centre. The prongs on stringers shall be to accommodate an angle of 21.30 Degrees between two panels. stringers shall be fixed at 150 mm from panel ends and at a distance of maximum 900 mm centre to centre across the panel span. The carrier shall be fixed to a suitable structure by means of rigid fixing details. All properties and specifications shall comply with ECCA directives and more specifically EN 1396:1996	536	M2
51	4136584	Providing and fixing double action heavy duty hydraulic floor spring of approved brand and manufacture IS:6315 marked, Hardwyn / Everite make or approved equivalent for doors including cost of cutting floors as required, embedding in floors and stainless steel cover plates with brass pivot and single piece M S Sheet outer box with slide plate, etc. complete as per the direction of Engineer.	89	NO
52	4136585	Providing and fixing Electrically operated rolling steel shutters fabricated from 18 gauge GI sheets with slide guides, bottom rail, brackets, door suspension shaft, housing box at operation arrangement, lock plates, locking arrangement, fixing bolts, pulling handles, hood, rolling arrangement and 2 coats of approved synthetic enamel paint over a coat of zinc primer complete. Provision of wicket gate shall be paid under seperate item, in that case area of wicket gate shall be deducted from this item for payment.	83	M2
53	4136586	Providing and fixing mechanically operated rolling steel shutters fabricated from 18 gauge GI sheets with slide guides, bottom rail, brackets, door suspension shaft, housing box at operation arrangement, lock plates, locking arrangement, fixing bolts, pulling handles, hood, rolling arrangement and 2 coats of approved synthetic enamel paint over a coat of zinc primer complete. Provision of wicket gate shall be paid under seperate item, in that case area of wicket gate shall be deducted from this item for payment.	17	M2

54	4136587	<p>P/F hollow metal pressed door 25x25x3</p> <p>Providing and fixing hollow metal pressed section door made up of MS door frame, 150 x 65 x 1.25mm thick with single rebet, MS pad plates welded at all hinge and lock locations, MS frame spacers at 600 centre to centre, base ties 2 numbers, 25 x 25 x 3 mm MS angle, MS holdfast 300 x 25 x 6 mm at maximum 600mm centre to centre (minimum 6 Nos), Neoprene bushings glued to frame with synthetic adhesive and shutter 45 mm thick flush welded fabricated with 2 outer skins of 1.25 mm thick MS sheet, 1mm thick steel sheet stiffeners at 500mm centre to centre, 6mm thick MS flat along perimeter of shutter including 150 mm long heavy duty MS hinges at maximum 600 mm center to centre (minimum 3 Nos for each shutter, iron oxidised 200 long tower bolt for each shutter, 300 long door handles- 2 Nos for each shutter, spring loaded door stopper for each shutter, concealed type lever lock with handle including one coat of red oxide primer and 2 coats of synthetic enamel paint, filling the hollows of door frame with CM 1:6, etc. complete for all lifts.</p> <p>For single shutter Same as above but for double shutter with 25 x 25 x 3 mm angle welded to one shutter for beading at meeting point."</p>	11	M2
55	4136588	<p>P/F hollow metal pressed door 25x45x3"</p> <p>Providing and fixing hollow metal pressed section door made up of MS door frame, 150 x 65 x 1.25mm thick with single rebet, MS pad plates welded at all hinge and lock locations, MS frame spacers at 600 centre to centre, base ties 2 numbers, 25 x 25 x 3 mm MS angle, MS holdfast 300 x 25 x 6 mm at maximum 600mm centre to centre (minimum 6 Nos), Neoprene bushings glued to frame with synthetic adhesive and shutter 45 mm thick flush welded fabricated with 2 outer skins of 1.25 mm thick MS sheet, 1mm thick steel sheet stiffeners at 500mm centre to centre, 6mm thick MS flat along perimeter of shutter including 150 mm long heavy duty MS hinges at maximum 600 mm center to centre (minimum 3 Nos for each shutter, iron oxidised 200 long tower bolt for each shutter, 300 long door handles- 2 Nos for each shutter, spring loaded door stopper for each shutter, concealed type lever lock with handle including one coat of red oxide primer and 2 coats of synthetic enamel paint, filling the hollows of door frame with CM 1:6, etc. complete for all lifts.</p> <p>For single shutter Same as above but for double shutter with 25 x 45 x 3 mm angle welded to one shutter for beading at meeting point."</p>	10	M2
56	4136589	<p>Providing & fixing factory made 2 hour rated fire doors by Shakti Met-Dor / Ahura Mazda or approved equivalent single & double shutter, the door frames will be built into brick or block walls using corrugated TEE anchors not welded to the frames (first fix). Frames may also be fixed on plastered openings with the help of Anchor Fasteners (second fix). Door frames must be supplied to knockdown form with butt joints for bolted assembly at site. Door leaves will be 46mm thk. fully flush, double skin door shell with Lock Seam joints at style edges. In-fill to give the required rigidity and effective acoustics & thermal insulation. Vision glass will be provided in circular / square/ rectangular shape..Stainless steel ball bearing butt hinges 3mm thk. fixed flush to the frame & shutter. Mortise sash lock : OZML-DL1-SS-55 with SS lever handles :make Zone : Model OMH - 11L, Over head door closer - Model : NSK - 6825 ,mortise dead bolt, mortise latch, panic deviceetc. to be provided as required. Concealed extended lever action flush bolts to be provided on top of the door to the leading style. The rate shall include all the necessary hardware, vision glasses, adhesive tapes & silicon sealant complete as described above.</p>	125	M2

57	4310549	<p>Providing & fixing factory made 2 hour rated fire doors (Glass Door) by Saint Gobain or Modiguard approved equivalent single & double shutter, the door frames will be built into brick or block walls using corrugated TEE anchors not welded to the frames (first fix). Frames may also be fixed on plastered openings with the help of Anchor Fasteners (second fix). Door frames must be supplied to knockdown form with butt joints for bolted assembly at site. Door leaves will be 46mm thk. fully flush, double skin door shell with Lock Seam joints at style edges. In-fill to give the required rigidity and effective acoustics & thermal insulation. Vision glass will be provided in circular / square/ rectangular shape..Stainless steel ball bearing butt hinges 3mm thk. fixed flush to the frame & shutter. Mortise sash lock : OZML-DL1-SS-55 with SS lever handles :make Zone : Model OMH - 11L, Over head door closer - Model : NSK - 6825 ,mortise dead bolt, mortise latch, panic deviceetc. to be provided as required. Concealed extended lever action flush bolts to be provided on top of the door to the leading style. The rate shall include all the necessary hardware, vision glasses, adhesive tapes & silicon sealant complete as described above.</p>	8	Sqm
58	4136590	<p>Providing and fixing solid core flush door with TW frame in Single / Double leaf 38 mm thk. Marine type of exterior grade as per detailed drawings, approved marine plywood facing on both sides without glazing and venetians, all necessary 12 x 18 mm teak wood beading / moulding and 6 x 35 mm T.W. lipping, C.P. ,Brass and S.S. Hinges, fixtures and fastenings, door handles, door locks and laminate finish to the satisfaction of Architect. Laminate shall be 1mm thick on both sides of make Signature, Greenlam, Century or equivalent.</p> <p>Providing and fixing 22G aluminium sheets as kick-plate for doors.</p> <p>Providing and fixing 2mm thick /approved quality rubber sealing strip, around doors and windows for making them airtight as per specifications and drawings.</p> <p>Providing and fixing approved quality hydraulic door closer conforming to IS:3564 as per drawings and as directed by the Engineer.</p>	32	Sqm
61	4310615	<p>Providing and fixing solid core flush door with Granite Frame in Single / Double leaf 38 mm thk. Marine type of exterior grade as per detailed drawings, approved marine plywood facing on both sides without glazing and venetians, all necessary 12 x 18 mm teak wood beading / moulding and 6 x 35 mm T.W. lipping, C.P. ,Brass and S.S. Hinges, fixtures and fastenings, door handles, door locks and laminate finish to the satisfaction of Architect. Laminate shall be 1mm thick on both sides of make Signature, Greenlam, Century or equivalent.</p> <p>Providing and fixing 22G aluminium sheets as kick-plate for doors.</p> <p>Providing and fixing 2mm thick /approved quality rubber sealing strip, around doors and windows for making them airtight as per specifications and drawings.</p> <p>Providing and fixing approved quality hydraulic door closer conforming to IS:3564 as per drawings and as directed by the Engineer.</p> <p>Double / single shutter door same as above with 6 mm thick transparent toughened glass on top half portion with teakwood framework all-round and at centre for panelling.</p>	32	M2

66	4136595	Providing,Fabrication,Erection,Alignment,Welding,etc., of stainless steel Railing for staircase/ ramp/ floors 1200 mm High with AISI 304 SATIN Polished steel with with main 50mm dia SS pipe as main runner and 25mm dia pipe at 3 levels along the running length of the staircase and vertical supports in 35mm dia SS pipes @1200mm c/c, the pipe to be 1.5mm thick including stainless steel beading / stainless steel cleats / stainless steel fasteners, toe guard plate wherever specified; of grade SS:304,annealed ,pickled and polished to bright finish, in square / round shape, including all material, equipment, handling, transportation, cutting, bending, welding, fastening, preparation and checking of fabrication drawing, and getting the same approved, site fabrication,testing,etc.,all complete, as per specification,drawings,and instruction of the Engineer.	269	M
67	4136596	Supplying, fabricating, transporting to site, loading, unloading etc. and erecting S.S. pipe removable/fixed type 1200 mm High with AISI 304 SATIN Polished steel with 50mm dia SS pipe as main runner and 25mm dia pipe at 3 levels along the running length, ss plate as toe guard with vertical pipes at maximum spacing of @1200mm c/c, the pipe to be 1.5mm thick, including stainless steel beading / stainless steel cleats / stainless steel fasteners, toe guard plate wherever specified; of grade SS:304,annealed ,pickled and polished to bright finish, in square / round shape, including all material, equipment, handling, transportation, cutting, bending, welding, fastening, preparation and checking of fabrication drawing, and getting the same approved, site fabrication,testing,etc.,all complete, as per specification,drawings,and instruction of the Engineer.	72	M
68	4136597	Providing, fabricating and fixing in position SS Hand Rail along walls with SS Pipe 50 mm dia and min. 1.5mm thick wall with all necessary fitting as the main runner joined to 25mm dia SS pipe and vertical bracket 2mm thick held on to walls by means of fasteners base plates to be @ every 1000mm c/c etc. complete.	422	M
69	4130403	Providing and fixing 2hr fire rated both sided Gypboard Partition walls of required thickness of saint Gobain or equivalent as per approved drawings including scaffolding/access, making cut-out of required sizes and supporting framework for door opening as specified in approved drawings and manufacturer specification using metal stud frame sections ,ceiling sections , connecting clip, drywall screws, anchor bolts, backing strips, includes filling and finishing with Jointing compound, Joint Paper tape and two coats of Drywall Top Coat as specified in specification , etc.all complete as per the the approved drawings and Manufacturer specifications.	55	M2
E		GLAZING WORKS		
70		Semi Unitised Structural Glazing		

	<p>Design, fabricate, supply, installation, protection, cleaning and handover of Window Wall Glazing system with Powder coated aluminium extrusions Mullion & Transoms of thickness not less than 1.2 mm or as per design requirements with bimetallic separators design to withstand a wind pressure not less than as mentioned in Technical specification. No Aluminium member and Sealant is visible on the exterior surface and No sealant shall be provided in the Groove and in such a way the system must be designed.) to any profile and shape, horizontally, vertically, sloped, curved etc with the approved make of glass. The curtain systems are to be fully prefabricated assembled units completed with site fixed frames & installed in pre- fixed cast-in channels / anchor bolts and brackets on site. The quote includes interface details such as fire seal/smoke seal, flashing, sealants, extruded capping(if required), insulations, brackets and any sub frame as required. The system shall be designed incorporating the Air pressure equalization principal with concealed continuous gutter at all levels and at all Floor levels for self drainage to achieve water tightness besides providing air & water barrier with Gaskets. The system shall be designed to accommodate thermal movement of the aluminium framing system including supporting arrangements, Fastening devices, glass, resulting from the exterior skin temperature from 15 to 85 deg.celsius, Interior skin temperature from 15 to 30 deg.celsius, and to accommodate horizontal building movement of maximum 10mm per bay and vertical movement of maximum 20 mm between floors. Glass thickness of 8 to 12 mm. System should have operable panels up to 10-15% of total area.</p>		Sqm
	Quoted rate shall include the following :		
	<p>a) Designing the system, preparation of shop drawing for approval, Full Scale Mock-up test at an approved independent Laboratory, supply, fabricate, erect as per approved drawing at all levels, elevation & heights including conducting field test (Methodology should be furnished and to be got approved by the Engineer / Architect). Design the framing system to support both Vision & Spandrel panel on a continuous / split framing system, irrespective of spandrel panel proposed with Glass or Aluminium Composite Panel - Plain or Corrugated panel or a combination thereof.</p>		
	<p>b) Providing and fixing pre-assembled aluminium frame work designed to with stand design wind pressure and Lateral forces specified else where in the Technical specification and Bills of Quantities subject to the Mullion having combined Moment of Inertia of the section on X direction not less than 725 Cm⁴ and horizontals made out of specially designed extruded sections matching the Mullion depth in such a way the Mullion and Transom flush on interior face and all fabricated as per design, fixed at all levels, elevation & heights into masonry wall / RC concrete surface with necessary approved supporting system consists clamps, fastening straps, nuts, bolts, rivets, washers and other fastening materials. Extruded section shall be designed to accommodate Double & single Glazing/ Metal panels and it shall be 6063 Alloy - T6 or BSH9 conforming to IS-63400, finished with Architectural Class-1 electrolytic colour anodic coating not less than 20 microns of approved colour conforming to ASS AA - M12 C 22 A 42/44.</p>		

		c) Providing and fixing glass as indicated below for both vision and spandrel panel conforming to the minimum spectral parameters attached with this Boq as Annexure(I). Insulated glazing unit shall have Black anodised Aluminium spacers and primary sealant as Poly-isobutylene (PIB) and a secondary seal with structural silicon sealant of DC 983 or DC 995 of Dow corning or SSG 4000 (one part) or SSG 4400 (two part) of GE Bayer silicone make or approved equivalent make. Make of glass proposed for Inner and outer pane of Insulated Glazing unit should be the similar make. Insulated glazing unit should be processed only by the approved overseas Processor and the details of the processor and their facilities shall submit for Engineer/Architect approval.		
		d) Providing and fixing EPDM / Neoprene gaskets and extruded Reddiprone weather strip as stage wise barrier (at least 3 barrier) to ensure water and air tightness. Weather stripping/Gaskets shall be Elastomer - EPDM		
		e) Providing continuous internal built in drainage system (Barrier) and such system shall be suitably designed to drain out the water at lowest floor level and necessary details shall be incorporated in the shop drawing.		
		f) Providing and applying the Sealants as indicated below, confirming to the thickness & bites of sealants as designed & determined by calculation, verified by testing and to withstand 3 times of the stress caused by the design wind pressure. Jointing shall be done, using Weather sealant of approved make with Spacer bars and Baker rods. Spacer bar shall be open cell polyethylene - Nortan Grind well make - Nortan V-2100. Baker rods shall be polyurethane - supreme make.		
		g) Shop / Factory Sealants :		
		i) Structural sealant shall be DC 983 or DC 995 of Dow corning or SSG 4000 (one part) or SSG 4400 (Two part) (silicone structural adhesive) of GE Bayer Silicone or approved equivalent make. No acetoxy sealant shall be used for Glazing.		
		Non - Structural / Weather Sealant shall be DC 789 of Dowcorning or Silpurf of GE Bayer silicon or approved equivalent make. Acetoxy sealant shall not be used for Structural Glazing application.		
		ii) Field Sealants :		
		a)Structural Sealant shall be DC 983 or DC 995 of Dow corning or SSG 4000 (one part) (Silicon adhesive) of GE Bayer Silicon or approved equivalent make.		
		b)Non - Structural / weather Sealant shall be DC 991 HP of Dowcorning or Silpurf NB of GE Bayer silicon or approved equivalent make. Acetoxy sealant shall not be used for Structural Glazing application.		
		h) Providing and fixing the supporting system consists clamps, fastening straps, nuts, bolts, rivets, washers and other fastening materials. Clamps and brackets shall be of hot dip galvanised steel and Fastening materials shall be 316 grade of 300 series non - magnetic stainless steel. Providing and fixing lock washer at all bolted connections, stainless steel safety clips on each corner of glass as an additional safety to avoid breakage of corner of the glass. Broken / Chipped off glass at the edges, any scratch in the surface of the glass shall not be provided and found any such damages in the system shall be replaced with new one.		
		j) Providing aluminium colour anodised extruded flashing/Channel at the required places like between masonry and structural glazing member, between false ceiling and structural glazing member, etc complete. All the Joints between the Flashing and other finish material / aluminium member shall be sealed with Intumeasant sealant of approved make.		

		k) Conducting Mock up test including necessary arrangements at an approved laboratory with the specified design wind pressure and Lateral force including providing facility to attend / witness the test by One owner representatives, One PM representative and Two architect's representative.(Methodology should be submitted along with the tender submission and get it approved from the Engineer/Architect).		
		Making provision for inspection of glass at manufacturing / Processor place overseas by one client representatives, one PMC representative and Two Architect's representative. If Mock up test fails, correct the defects revealed till the satisfaction of the performance data as set out in the Technical Specification on prior approval from the Engineer / Architect on defects rectification Methodology.		
		l) Conducting Field test as per the sequence given in the technical specification on the cladding system ensuring all design criteria met with. (Methodology should be submitted along with the tender submission and get it approved from the Engineer / Architect). If Field up test fails, correct the defects revealed till the satisfaction of the performance data as set out in the Technical Specification on prior approval from the Engineer / Architect on defects rectification Methodology. The approximate size of glass pane shall be 1200x1700mm. Thickness of the glass shall be ascertained by vendor accordingly. However thickness shall be minimum 8 mm.		
	4136685	Saint Gobain Clear toughened glass	131	M2
	4136686	Saint Gobain Color toughened glass	131	M2
		SGU Semi unitized Window Wall Glazing System		
		Design, fabricate, supply, installation, protection, cleaning and handover of Window Wall Glazing system with Powder coated aluminium extrusions Mullion & Transoms of thickness not less than 1.2 mm or as per design requirements with bimetallic seperaters design to withstand a wind pressure not less than as mentioned in Technical specification. The curtain systems are to be fully prefabricated assembled units completed with site fixed frames & installed in pre- fixed cast-in channels / anchor bolts and brackets on site.The quote includes interface details such as fire seal/smoke seal, flashing, sealants, extruded capping(if required), insulations, brackets and any sub frame as required. The approximate size of glass pane shall be 1200x1700mm. Thickness of the glass shall be ascertained by vendor accordingly. However thickness shall be minimum 8 mm.		
(i)	4136671	Saint Gobain Clear toughened glass	55	M2
(ii)	4136672	Saint Gobain Color toughened glass	55	M2
(iii)	4136673	low-e glass of following specifications Shading Coefficient = 0.33 Visible Light Transmittance = 28.2% U-value = 3.8 W/Sq.m degk, from Saint Gobain or equivalent	55	M2
71	46061	GRC Jali: Providing, fabricating and fixing GRC (Glass Reinforced Concrete) Jali of approved design, pattern and thickness, including required framing/supports, cutting, shaping, edge finishing and fixing on wall with approved mechanical fasteners/anchors. The item includes all materials, labour, scaffolding, tools, hardware, sealant and completing the installation in proper line and level as per drawings and engineer's instructions.	825	Sqm

72	4136676	MINERAL FIBRE grid FALSE CEILING of Saint Gobain or equivalent (600x600mm grid). Bidder to provide adequate steel sections (Channels, I or T sections) and hanger supports to cater to the false ceiling loads. Standard sections as spelled out in Saint Gobain or equivalent manufacturer catalogue to be provided. OWNER would check the design and adequacy and has the right to reject if found inadequate.	4,620	M2
73	4136677	Metal tiles (powder coated galvanized steel) grid FALSE CEILING of armstrong or equivalent (600x600mm grid). Bidder to provide adequate steel sections (Channels, I or T sections) and hanger supports to cater to the false ceiling loads. Standard sections as spelled out in armstrong or equivalent manufacturer catalogue to be provided. OWNER would check the design and adequacy and has the right to reject if found inadequate.	40	M2
74	4136678	Providing all materials and fixing monolithic Gypsum FALSE CEILING of Saint Gobain or equivalent. Bidder to provide adequate steel sections (Channels, I or T sections) and hanger supports to cater to the false ceiling loads. Standard sections as spelled out in Saint Gobain or equivalent manufacturer catalogue to be provided. OWNER would check the design and adequacy and has the right to reject if found inadequate.	1,155	M2
75	4136648	Providing and fixing 15 mm thick, maximum of 300mm width polished black granite on sides of opening on 20 mm thick cement mortar 1:3 including polishing to exposed edges, cement float, filling joints with neat cement slurry mixed with pigment to match shade of granite, raking and finishing the joints with silicon sealant, curing, rubbing and cleaning complete at all levels.	17	M
76	4136649	Providing and fixing of fully glazed door with minimum 12mm thick glass toughened by horizontal process of St. gobain, modi guard or equivalent make by using patch fittings, double action hydraulic heavy duty floor spring IS:6315, door handle on both sides including cost of cutting floors as required. All hardwares shall be of Godrej, Dorma or equivalent, whatever necessary and required numbers to complete the job in all respect. as per the instruction of the Architects.	6	M2
77	4136650	Providing and fixing wicket gate in mechanically and/ or electrically operated rolling shutter (wicket gate area shall be deducted from the respective item applicable for rolling shutter for payment purpose.)	9	M2
78	4136651	Providing and fixing 1 hour fire rated glass partition system. Rate shall be for complete system including glass frame and necessary hardware. Approved vendor St. Gobain vetrotech or equivalent make. It includes, Fire rated Glass door Single shutter or Fire rated Glass door Double shutter	57	M2
80	4136652	Providing and fixing fully glazed partition with 12mm thk clear toughened glass including all necessary hardware required. Approved vendor Glass: St. Gobain or equivalent Approved vendor Hardware: godrej enox or equivalent	11	M2
81	3001551	Green Building certification Scope includes registration charges, consultantancy Charges, followups with all concern authorities, providing required site records , photographs , certification (Minimum Platinum) & Coordination with Consultant. Any additional amount beyond this scope claimed by consultant will be paid as per actual invoices.	1	AU

82		Supplying and fixing Automatic sliding gate of size 33000mm x 3000mm ht ,Length in 3 equal parts ,External Members- MS tubular section 100 x 100 x 3.2mm thick, Internal Members - MS tubular section 40 x 40 x 2mm With Gap Center To Center 150mm, One side covered with colour coated GI sheet, Full Height Column - MS tubular section 100 x 100 x 3.2mm thick, Bottom rail - Double Track - Polished Bright bar 20 mm dia rail welded over Bottom I-Beam ISMB 100 x 50, Bottom Rollers - Single Track - Heavy Duty bottom rollers with dual bearing mechanism for free sliding movement fixed at the bottom member of gate frame, Drive - (1) Imported Make Electric motor , (2) Power Supply Single/Three Phase 50/60 Hz, (3) Inbuilt magnetic Limit switch ,(4) Inbuilt control panel,(5) Protection class IP 54,(6) CE Certified, Emergency Operation - Rotating release device easy to operate & key protected (Standard), Push Button - from Inside on Full Height Column (Optional: placement of push button as per client requirement), Finished with Powder coating , etc. complete as per manufacturer specification	105	M2
83		Supplying and fixing Automatic sliding gate with of size 7500mm x 3000mm in single shutter , External Members- MS tubular section 100 x 100 x 3.2mm thick, Internal Members - MS tubular section 40 x 40 x 2mm With Gap Center To Center 150mm, One side covered with powder coated GI sheet, Full Height Column - MS tubular section 100 x 100 x 3.2mm thick, with wicket Gate . Bottom rail - Double Track - Polished Bright bar 20 mm dia rail welded over Bottom I-Beam ISMB 100 x 50, Bottom Rollers - Single Track - Heavy Duty bottom rollers with dual bearing mechanism for free sliding movement fixed at the bottom member of gate frame, Drive - (1) Imported Make Electric motor , (2) Power Supply Single/Three Phase 50/60 Hz, (3) Inbuilt magnetic Limit switch ,(4) Inbuilt control panel,(5) Protection class IP 54,(6) CE Certified, Emergency Operation - Rotating release device easy to operate & key protected (Standard), Push Button - from Inside on Full Height Column (Optional: placement of push button as per client requirement), Finished with enamel paint, etc. complete as per manufacturer specification	22.5	M2
84		Supplying and fixing Automatic sliding gate with of size 5000mm x 3000mm, in single shutter, External Members- MS tubular section 100 x 100 x 3.2mm thick, Internal Members - MS tubular section 40 x 40 x 2mm With Gap Center To Center 150mm, One side covered with powder coated GI sheet, Full Height Column - MS tubular section 100 x 100 x 3.2mm thick, with wicket gate , Bottom rail - Double Track - Polished Bright bar 20 mm dia rail welded over Bottom I-Beam ISMB 100 x 50, Bottom Rollers - Single Track - Heavy Duty bottom rollers with dual bearing mechanism for free sliding movement fixed at the bottom member of gate frame, Drive - (1) Imported Make Electric motor , (2) Power Supply Single/Three Phase 50/60 Hz, (3) Inbuilt magnetic Limit switch ,(4) Inbuilt control panel,(5) Protection class IP 54,(6) CE Certified, Emergency Operation - Rotating release device easy to operate & key protected (Standard), Push Button - from Inside on Full Height Column (Optional: placement of push button as per client requirement), Finished with enamel paint, etc. complete as per manufacturer specification	15	M2
85	4186707	SUPPLYING AND MIXING OF DRAMIX FIBERS IN CONCRETE AS SPECIFIED IN MANUFACTURER.FIBRE-BALLING TO BE AVOIDED DURING MIXING AND ENSURE THAT THE FIBRES ARE EVENLY SPREAD THROUGHOUT THE CONCRETE MIX.RATE SHOULD INCLUDE ALL TRANSPORATION,LOADING, UNLAIODNG MIXING ETC COMPELTE AS DIRECTED BY ENGINEER INCHARGE DRAMIX FIBERS 4D IN CONCRETE	320	KG
		Total For General Building Works		

BILL OF QUANTITIES - PHE WORKS				
Sr. No.		Description of Item	Quantity	Unit
I.		PLUMBING WORKS		
A		EXTERNAL DRAINAGE		
1	4135455	Construction of best quality approved make stoneware gully trap 150 x 100mm with D.I. Grating including embedding trap in cement concrete 1:4:8 and constructing chamber of size 300 x 300mm x 300mm deep inside clear in brick masonry 230mm thick in cement mortar 1:3, 12mm thick water proof cement plaster in cement mortar 1:3, inside finished with floating coat of neat cement and rough finished outside, providing and fixing D.I. frame and hinged cover 300mm (clear opening) weighting not less than 8.0 Kgs. painting with three coats of anti-corrosive black bitumastic paint, all complete as per specifications of the Engineer-in-Charge. (Excluding Excavation).	9	NO
2	4135456	Construction of inspection chamber of internal dimension of 900x600mm upto depth of 1500mm outside plant area constituting of following items:-	3	Nos
a		PCC foundation bed in M:15, 150 mm thick size 1100 x 1250 mm		
b		250 mm thick best quality approved brick masonry walls in CM 1:3.		
c		Internal walls plastered in CM 1:3 with water proofing compound		
d		External walls plastered in CM 1:3 with sponge finish		
e		Benching and channeling in PCC M:15 smooth		
f		C.C. M15 coping on top 150 mm thick.		
g		MCGM approved heavy duty 12.5tn load carrying capacity DI frame and cover of Class B 125		
h		75 mm wide filled (Vata) all round brick masonry and c.c. bed in CM 1:3.		
j		Making necessary inlet/outlet connections all complete.		
3	4135457	Construction of circular sewer manholes more than 1500mm depth and less than 2300mm having clear internal dia. At the top 600mm and 1200mm at the bottom with 230mm thick brick masonry in cement mortar 1:3, M:15 cement concrete foundation, 230mm thick, haunches and benching in M:15 cement concrete, water proof cement plaster 1:3 & 12mm thick both internal and external surface finished with floating coat of neat cement providing and fixing C.I. steps weighing not less than 5.3 kg. each as required at 340mm centre to centre, D.I. circular type cover & frame of internal dia. 600mm heavy type weighing not less than 175 Kg. (Grade C-250) fixed over 100mm thick R.C.C. coping in M:15 cement concrete provided with M.S. reinforcements of 10mm dia. rods at 100mm centre both ways painting the frame, cover & steps with two coats of anticorrosive bitumastic paint, testing, all complete as per specifications outside plant area. (Excluding Excavation).	2	Nos
4		Providing and fixing in manhole best quality approved make salt glazed stoneware master trap including making necessary connections, providing and fixing cleaning plug, embedding in concrete M:15 all complete.		
a	4135458	200mm dia.	2	Nos
5	4135459	Providing and laying 1:3:6 cement concrete for bedding, pipe supports and encasing the pipes, including necessary form work, compaction, curing de-watering, etc. All complete as per specifications and directions of the Engineer-in-Charge.	8	Cum

6		Providing & laying RCC NP3 class Hume pipe conforming to IS 458 in slope with RCC collar in cement sand joint in 1:3 proportion including cutting the pipes to required length, complete.		
a	4135460	200 mm dia.	10	M
b	4135461	150 mm dia.	30	M
B		WATER SUPPLY PIPES AND FITTINGS (DOWN FEED SYSTEM)		
7		Supplying, installing, fixing, jointing, testing and commissioning of approved make Chlorinated Polyvinyl Chloride pipes (CPVC) up to 50mm dia SDR.11, ASTM CTS, and above 50mm dia CPVC schedule 40 ASTM IPS at all levels. Fittings up to 50mm dia SDR.11, ASTM CTS and above 50mm dia CPVC CORZON schedule 40 fittings. The fittings and specials such as tees, elbows, couplers, bends, enlargers etc., with CPVC brass threaded combination / transition specials such as male adapters brass threaded female adapters, brass FPT Tee, Brass FPT elbow etc., where connection with metal is to be made including necessary scaffolding, drilling holes, chasing walls and making the same good in cement mortar 1:1 restore the same original condition neatly as directed by the Engineer in-charge. Joints to be made with CPVC solvent cement up to 50mm dia as per ASTM D-2846 and above 50mm dia primer P-70, and solvent conforming to ASTM F-4931 / 724.		
a	4135462	15mm dia	30	M
b	4135463	20mm dia.	25	M
c	4135464	25mm dia.	30	M
d	4135465	32mm dia.	1	M
e	4135466	40mm dia.	1	M
f	4135467	50mm dia.	1	M
8		Supplying, installing, fixing, jointing, testing and commissioning of approved make Chlorinated Polyvinyl Chloride pipes (CPVC) up to 50mm dia SDR.11, ASTM CTS, and above 50mm dia CPVC schedule 40 ASTM IPS. Fittings up to 50mm dia SDR.11, ASTM CTS and above 50mm dia CPVC CORZON schedule 40 fittings. Joints to be made with CPVC solvent cement up to 50mm dia as per ASTM D-2846 and above 50mm dia primer P-70, and solvent conforming to ASTM F-4931 / 724. pipe to be laid underfloor / fixed on walls of shafts at all levels using proper hanger supports, grip bolts, clamps, scaffolding, etc. all complete as per specification & direction of Engineer-in-Charge.		
a	4135468	20mm dia	5	M
b	4135469	25mm dia	12	M
c	4135470	32mm dia.	20	M
d	4135471	40mm dia.	1	M
e	4135472	50mm dia.	1	M
9		Providing and fixing water meter of MCGM approved make (Leader/Capston) including providing and fixing matching Control Valve, strainer, non-return valve, complete including excavation, constructing suitable brick masonry chamber 230mm thick 1:3 cement mortar with plaster inside, outside in cement mortar 1:3 to house water meter, strainer and valves and provide 125 Kgs. cast iron frame and cover for the chamber, with locking arrangement all complete as per direction of the Engineer-in-Charge. (Valve chamber size 900 x 600 x 600mm)		
a	4135473	50mm dia. Chamber size: 900 x 600 x 600mm	1	NO
C		VALVES		
10		Providing and fixing C.S. heavy approved make ball valves screwed type of the following diameters (20 Kg/cm ²)		

a	4135474	50mm dia	2	NO
b	4135475	40mm dia	1	NO
c	4135476	32mm dia.	3	NO
d	4135477	25mm dia.	4	NO
e	4135478	20mm dia.	2	NO
11		Providing and fixing ball cock heavy duty with copper float all complete.		
a	4135479	50mm dia.	2	NO
b	4135480	40mm dia.	1	NO
12	4135481	Providing and fixing 20mm dia. Automatic (RB) air release valve including providing and fixing cut off & drain valve, making necessary inlet/outlet connection and fixing with M.S. Brackets complete.	5	NO
D		WATER SUPPLY TRANSMISSION MAIN UPTO O.H.TANK		
13		Supplying & providing the concealed and buried GI pipes with protective PVC tape with 50% overlapetc., complete(The quantity of pipe is included in item Nos122)		
a	4135482	40 mm dia	18	M
b	4135483	50 mm dia	18	M
c	4135484	65 mm dia	18	M
14		Providing and fixing G.M. gate valve screwed type with required 300x300mm masonry chamber in brick bat & C.I. cover all complete.		
a	4135485	40 mm dia	1	NO
b	4135486	50 mm dia	1	NO
c	4135487	65 mm dia	1	NO
E		SOIL,WASTE, VENT, ANTI SY-PHONAGE AND INTERNAL DRAINAGE PIPES & FITTINGS		
15		Supplying, fixing and testing UPVC soil, waste and ventpipes (SWR) including ventcaps conforming to IS 13592 :1990, type B with Cement Solvent joint inclusive of all necessary specials like bends, tees, offsets, door bends, junctions, vent cowls, etc., laid underfloor / fixed on walls at all levels, and in pipe shaftsetc.,complete.The quoted rate should include lead and lifting charges to all levels, necessary scaffolding and supports like hanger supports, grip bolts and clampsetc. as per specification & direction of Engineer-in-Charge.		
a	4135488	75mm dia.	100	M
b	4135489	100mm dia.	60	M
c	4135490	150mm dia.	20	M
16		Providing and fixing UPVC Aquarius Brand heavy class pipe for drains including providing and fixing necessary fittings such as elbows, tees union fittingsetc. including cutting holes and pockets chasing in the wall or floors as required and making good the same to original conditions after concealing the pipes where required, lagging the concealed pipes with hessian cloth dipped in hot black bitumen, testing, all complete as per specifications of the following diameters. (for Sink,Drain, and Urinal Drains)		
a	4135491	32mm dia.	40	M
b	4135861	40mm dia.	30	M
c	4135862	50mm dia.	25	M
17	4135863	Providing and fixing C.P. Brass heavy quality gratings (3mm thick) for floor drains including making necessary recessment grouting with neat cement all complete to the satisfaction and direction of the Engineer-in-Charge.	36	M2
18		Providing and fixing cleanouts consisting of Nickel Bronze clean out ring and disc with three SS screw connecting to P.V.C. pipe all complete to the satisfaction and direction of the Engineer-in-Charge.		

a	4135864	160mm dia.	3	NO
b	4135865	110mm dia.	4	NO
c	4135866	80mm dia.	2	NO
19	4135867	Providing and fixing PVC Pan connectors with or without vent holes straight/bend including providing & jointing with lead caulked joints.	4	NO
20		Providing and fixing PVC. heavy approved Nahani Traps with minimum 40mm seal including fixing the same with the solvent cement joints complete to complete to the satisfaction and direction of the Engineer-in-Charge.		
a	4135868	Size 100 x 75mm.	10	NO
21		Supply, installation, testing commissioning of UPVC "P" Trap in solvent cement joints all complete.	4	NO
a	4135869	110mm dia.		
F		RAIN WATER PIPES & FITTINGS		
22		Supplying, fixing and testing rain water pipes of UPVC (SWR) confirming to IS 13592 :1990, type B with Cement Solvent joint inclusive of all necessary specials like bends, tees, offsets, door bends, junctions, cowls, etc., laid underfloor / fixed on walls, and in pipe shafts etc.,complete.The quoted rate should include lead and lifting charges to all levels, necessary scaffolding and supports like hanger supports, grip bolts and clamps etc. as per specification & direction of Engineer-in-charge.		
a	4135870	200mm dia.	30	M
b	4135871	150mm dia.	366	M
c	4135872	100mm dia.	30	M
23		Providing and fixing cast iron dome shaped grating including making proper recessment, grouting with cement mortar 1:1 Anti corrosive painting as approval all complete as per specifications.		
a	4135873	150mm dia.	8	NO
b	4135874	110mm dia.	2	NO
24		Providing and fixing lead sheet flashing sheet of size 300mm x 300mm to suit the following dia pipes/rain water outlet using lead sheets weighing not less than 27.5 Kg.per sq.m.including moulding to proper shape and grade including cutting of R.C.C. roof slab or wall as required and providing and fixing with cement mortar 1:2 with water proof compoundetc. all complete as per specifications and directions of the Engineer-in-Charge.		
a	4135875	200mm dia. Pipe	1	NO
b	4135876	150mm dia. Pipe	8	NO
c	4135877	100mm dia. Pipe	1	NO
G		SANITARY FIXTURES & FITTINGS		
25		Providing and fixing approved off white vitreous china European water closet comprising of the following for complete installation.		
a		European water closet off white Wall Hung including PVC 'P' trap with seat cover CP brass hinges, rubber bushes (1 No.) [Hindware Studio 20061 or parryware Indus Walvit]		
b	4135878	6 Ltrs dual type concealed type PVC flush cistern with adjustable flow rate, push button plate, flush pipe & bend all complete.Hindware concealo or Parryware Linea make.	4	PC
c		15mm dia. CP heavy approved quality 2-way bib tap with wall flanges (1 No.).Jaguar florentine or allied series.		
d		15mm dia. Approved quality health faucet with flexible tube & wall hook (1 No.).Jaguar or equivalent.		
e		15mm dia. Approved quality angle valve (1 No.)Jaguar or equivalent.		
f		Total of all with making necessary inlet/outlet connection all complete.		

26	4135879	Providing and fixing over counter wash basins of company, comprising of the following for complete installation.		
a		Oval shaped under counter type wash basin. (1 No.)		
b		C.I. Bracket suitable for above (1 Pair)		
c		32mm dia. CP waste coupling (1 No.) JAGUAR or equivalent		
d		32mm dia. CP bottle trap with extension piece, CP wall flange complete. (1 Set) JAGUAR or equivalent		
e		15mm dia. CP heavy angle, stop cock with wall flanges (2 Nos) JAGUAR or equivalent	4	PC
f		15mm dia. CP heavy inlet connection pipe (2 Nos)		
g		15mm dia. CP pillar tap, JAGUAR florentine FLR-5009B / allied series or equivalent		
h		Total of all with making necessary inlet/outlet connection all complete.		
j		Hand Towel Dispenser of company : Kimberly clark , Cat no : 02010 (White)		
27	4135880	Providing and fixing stainless steel sink of size 900 x 450 (19 gauge) single bowl , drain board including 40mm dia. Waste coupling, CP bottle trap, waste flexible pipe upto nahani trap, water tap Jaguar make with aerator and making inlet/outlet connections all complete as per specifications and directions of the Engineer-in-Charge. (For Kitchen / Pantry) [Nirali, parryware or equivalent.	1	No
28		Providing & fixing storage type water cooler with Aquaguard of the following capacity, I.S.I marked, stainless steel front panel, C.P. brass push cock, inlet float valve with all plumbing & electrical accessories, inlet, outlet, overflow and PVC drain out connection to F.D. complete as required.		
a	4135881	Cooling capacity 40 Lts/hr, Storage capacity 80 Lts.	1	Nos
29	4135882	Providing and fixing ultra White Vitreous China half stall wall hung standard urinals Hindware Smart Catalogue No. (60011) or Parryware New Magnum No. C0575 or equivalent including fixing the same in concealed C.I. brackets. CP spreader, CP dome shaped waste coupling, CP bottle trap with flanges flush pipe making inlet and outlet connections, including automatic urinal flushing system all complete as per the specifications and directions of the Engineer-in-Charge.	2	Nos
30	4135883	Providing and fixing frosted glass Urinal partition (815 x 385x150mm) with CP brass bolts, anchor fastners & MS clips as recommended & directed by the Engineer-in-Charge.	3	Nos
31	4135884	Providing and fixing C.P. open type toilet paper holder 200 x 150mm, including fixing the same with C.P. screws complete. Of JAGUAR Continental series or equivalent approved make.	4	NO
32	4135885	Providing and fixing open type soap dispenser with inlet / outlet connection all complete. JAGUAR or equivalent approved make	2	Nos
33	4135886	Providing and fixing soap dish holder with inlet / outlet connection all complete. JAGUAR or equivalent approved make	2	NO
34	4135887	Providing and fixing robe hooks (double) including fixing the same with CP screws complete. [JAGUAR-1191N]	4	NO
35	4135888	Providing and fixing hand drier unit complete with Electrical connections of Ascon prima series or Euronics or equivalent.	2	NO
36	4135889	Supplying, fixing SS 20mm dia 300 mm long straight grab bar with flanges, fixed with SS screws complete. [JAGUAR-1101N]	1	NO
		Total for Plumbing Works		

II.		Miscellaneous Works		
37	4135891	Providing and laying cement concrete pipe of IS: 458 - 1988 NP3 class of 300 mm diameter in proper line, level and slope including providing, fixing collars in cement mortar 1:2, etc. complete as directed by Engineer.	50	M
38	4135892	Providing and laying HDPE 150 dia pipe from transformer oil pit to burnt oil pit.	100	M
39	4135893	Providing and laying M.S. 75 dia pipe IN Transformer wall.	25	M
40	4135894	Providing, supplying and fixing 60 mm thk perforated GI cover for storm water drain.	36	M2
41	4135895	Supply, installation, protection, cleaning and handover of rain water harvesting system, including filter as per authority and owner requirements	1	NO
42	4135896	Providing and fixing PVC water tank of Sintex or Equivalent make including installing in position, making water tight inlet and outlet connections, preparing base for tank, painting etc complete as per specifications and direction of Engineer.		
i	4135896	5000 litre capacity	2	Nos
ii	4135897	10000 litre capacity	1	Nos
43	46028	Connecting the existing building main storm water/drainage/drinking water connections with the existing MCGM/BMC/MMRDA connections outside boundary.	4	EA
44	4135898	Supplying and fixing sink mounted Eye Wash including all plumbing works and accessories fixtures conforming to ANSI/ISEA Z358.1-2009 (recommended make: Unicare)	1	NO
45	4135899	Providing and fixing Eye wash Hand/Foot operated made of GI pipes (as per IS 1239) and SS valves , bowl sprinklers, shower head made of tough Cycloc polymer material with pop up cover guard, sprinklers fitted with flow compensator to ensure constant & even flow of water, aluminum foot plate or push handle including all plumbing works and accessories, fixtures conforming to IS 10592. It should have 3 Kgf/CM operating pressure, 5 Kgf/CM design pressure and 8 Kgf/CM hydro test pressure.	1	NO
46	4135900	Providing and fixing mirror min 8 mm thick with 3/4" bevelling of make Saint Gobain or equivalent fixed on the wall with SS studs	5	M2
		Total		
III		Designing of scheme, preparation of drawings and seeking approval from owner for		
i	4310610	Rain water harvesing system including underground tank, pipe connections, cleaning mechanism (filtration), overflow protection mechanism etc. complete as per MCGM guidelines.	1	EA
ii	4310550	Plumbing and strom water drainage scheme	1	EA
iii	4310606	sewage and waste water scheme	1	EA
		GRAND TOTAL FOR PHE WORKS		

Note: Above Quantities are tentative. Tata Power reserves the right to curtailed / enhance the quantities before the placement of Purchase Order.