

Ref: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743/Corg 02

Dt: 13/04/2023

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ALL BIDDERS

Sub: Corrigendum-02: PQR amendment, Issuance of Revised BOQ

Job: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

Tender Specification Number: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Bidders to kindly take note of the following:

AA) PQR B and C-1 are being revised as below:

SI No	Existing PQR	Amended PQR
B	B) Technical PQR Bidder shall essentially meet all the Qualifying Requirements (i.e. B.1 & B.2 & B.3) as under, in the last seven years as on latest date of bid submission: B.1: Bidder should have Executed "Piling or Civil or Structure or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works" for any one of the following in the last seven years from latest date of bid submission: B.1.1) Executed One work of value not less than Rs. 5296 Lakhs against single work order. OR B.1.2) Executed Two works each of value not less than Rs. 3310 Lakhs against	B) Technical PQR Bidder shall essentially meet all the Qualifying Requirements (i.e. B.1 & B.2 & B.3) as under, in the last seven years as on latest date of bid submission: B.1: Bidder should have Executed "Piling or Civil or Structure or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works" for any one of the following in the last seven years from latest date of bid submission: B.1.1) Executed One work of value not less than Rs. 4248 Lakhs against single work order. OR B.1.2) Executed Two works each of value not less than Rs. 2655 Lakhs against

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SI No	Existing PQR	Amended PQR
	maximum two work orders. OR B.1.3) Executed Three works each of value not less than Rs. 2648 Lakhs against maximum three work orders. And B.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least 14555 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts. And B.3: Bidder should have executed Earthwork in filling involving mechanical compaction quantities of at least 33794 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts.	maximum two work orders. OR B.1.3) Executed Three works each of value not less than Rs. 2124 Lakhs against maximum three work orders. And B.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least 11053 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts. And B.3: Bidder should have executed Earthwork in filling involving mechanical compaction quantities of at least 33794 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts.
C-1	Bidders must have achieved an average annual financial turnover (audited) of Rs. 1986.00 Lakhs or more over last three Financial Years (FY) i.e 2019-20 , 2020-21 & 2021-2022'	Bidders must have achieved an average annual financial turnover (audited) of Rs. 1593.00 Lakhs or more over last three Financial Years (FY) i.e 2019-20 , 2020-21 & 2021-2022'

Enclosure:

1. Revised-ChapterXIBOQandPercentageWeightages2743 : This Chapter revised in totality.

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2. Revised-ExcelSheetforCalculationPurposeOnly2743

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing.

Bidders are requested to submit as a part of Technical Bid, a copy of this corrigendum duly countersigned by the authorized signatory and stamped with the Official seal as a token of Bidder's unqualified acceptance of this corrigendum/ digitally signed.

BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,
Yours Sincerely,

GM (Purchase)

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
100	EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.			
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.			
a	Depth from ground level but not exceeding 2 m	CUM	30655	0.5064992113
b	Depth exceeding 2 m but not exceeding 4 m	CUM	17660	0.3656480962
c	Depth exceeding 4 m but not exceeding 6 m	CUM	13043	0.3382549012
d	Depth exceeding 6 m but not exceeding 8 m	CUM	2143	0.0694713423
102	Extra over item no 101 for dewatering with well Point Method as per IS-9759	CUM	110	0.0010001301
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.			
a	Depth from ground level but not exceeding 2 m	CUM	17000	0.4181378974
b	Depth exceeding 2 m but not exceeding 4 m	CUM	11600	0.3405621638
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1136	0.0400292615
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1386	0.0601765540
e	Depth exceeding 8 m but not exceeding 10 m	CUM	1333	0.0665532939
105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc. as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.			
a	Depth from ground level but not exceeding 2 m	CUM	210	0.0123417711
b	Depth exceeding 2 m but not exceeding 4 m	CUM	110	0.0077511351
c	Depth exceeding 4 m but not exceeding 6 m	CUM	145	0.0123920911
d	Depth exceeding 6 m but not exceeding 8 m	CUM	10	0.0010258830
e	Depth exceeding 8 m but not exceeding 10 m	CUM	15	0.0017713637
106	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1 KM, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.			
a	Depth from ground level but not exceeding 2 m	CUM	15	0.0033856682
b	Depth exceeding 2 m but not exceeding 4 m	CUM	5	0.0014184464
c	Depth exceeding 4 m but not exceeding 6 m	CUM	15	0.0049311851
d	Depth exceeding 6 m but not exceeding 8 m	CUM	10	0.0039446092
e	Depth exceeding 8 m but not exceeding 10 m	CUM	10	0.0045372664
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	52000	0.9678693957
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1250	0.0265733357
A108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc. all complete for the following.			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	8863	0.0982445237
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1250	0.0147627195

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Revised-Chapter XI-BOQ and Percentage Weightage-2743

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.			
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	7823	0.0114483803
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	46926	0.0686728309
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	2255	0.5948656080
200	CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc. (BHEL will supply of Cement free of cost as per TCC)	CUM	1568	0.8521467392
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc (BHEL will supply Cement free of cost as per TCC)	CUM	160	0.0869528637
203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc (BHEL will supply Cement free of cost as per TCC)	CUM	228	0.1239087118
204	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete. (BHEL will supply Cement free of cost as per TCC)	CUM	221	0.1162219591
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at all level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. (BHEL will supply Cement free of cost as per TCC)			
a	M 25 Grade	CUM	10500	6.4134871588
c	M 35 Grade	CUM	130	0.0784332058
206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at all level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. (BHEL will supply Cement free of cost as per TCC)			
a	M 25 Grade	CUM	8000	4.9450273330
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system but including TG foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing (BHEL will supply Cement free of cost as per TCC)			
a	M 30 Grade	CUM	151	0.0935241063
b	M 35 Grade	CUM	200	0.1300801057

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra- sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%. (BHEL will supply Cement free of cost as per TCC)			
b	M 35 Grade	CUM	220	0.2004123087
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	155	0.0220767319
210	Extra over ST Nos. 205 to 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	140	0.0104624822
211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)(BHEL will supply Cement free of cost as per TCC)			
b	M 25	CUM	700	0.3804223368
212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.(BHEL will supply Cement free of cost as per TCC)			
a	0.043102	CUM	1045	0.5679158046
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.(BHEL will supply Cement free of cost as per TCC)			
a	M25	CUM	245	0.2350664853
b	M30	CUM	315	0.3039436457
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.(BHEL will supply Cement free of cost as per TCC)			
b	M30	CUM	263	0.2036968287
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			
a	Plain cement concrete of all grades	CUM	86	0.0152703241
b	Reinforced cement concrete of all grades	CUM	200	0.0514922126
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	2380	0.0209048024

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Revised-Chapter XI-BOQ and Percentage Weightage-2743

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	370	0.0002309296
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	360	0.0210062895
220	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.(BHEL will supply Cement free of cost as per TCC)	CUM	78	0.0409436613
223	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	98	0.0295147652
300	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			
A301	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	27607	2.3095980182
A302	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	16147	1.6109022032
A303	Plywood Formwork with filmface of required thickness and smooth surface for TG superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.	SQM	196	0.1075821772
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.			
a	Upto 150 mm depth	EACH	51	0.0018875909
b	Pockets of depths more than 150mm and upto 300 mm depth	EACH	217	0.0140662034
c	Pockets of depths more than 300mm and upto 600 mm depth	EACH	77	0.0091787306
d	Pockets of depths more than 600mm and upto 1000 mm depth	EACH	67	0.0127375536
e	Pockets of depths more than 1000mm and upto 1500 mm depth	EACH	55	0.0152528731
f	Pockets of depths more than 1500mm and upto 2000 mm depth	EACH	50	0.0188543918
400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge for the following:			
401	Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	16	0.1944667617
403	Transportation, straightening, cutting, bending, fixing,placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR conforming to IS:1786 with minimum elongation of 14.5% including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer (BHEL to supply steel free of cost).	MT	1339	2.1183271660
A406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR conforming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).			
d	25mm dia	Nos.	200	0.0062262883
e	28mm dia	Nos.	70	0.0033068844
f	32mm dia	Nos.	70	0.0039083518
g	36mm dia	Nos.	70	0.0048703607

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
407	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	8	0.0958198478
408	Transportation, straightening, cutting, bending, placing in position at any level, binding in position high yield strength steel TMT reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings. (BHEL to issue steel free of cost)	MT	8	0.0655033521
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.(Material used for roof treatment shall be CFC & HCFC free. The contractor shall submit documentary proof to GRIHA consultant in support of same).			
501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.(BHEL will supply of Cement free of cost as per TCC)	SQM	5545	0.2085634620
502	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete. (BHEL will supply of Cement free of cost as per TCC)	SQM	18353	0.4073446930
A503	Providing and laying roof insulation with 40 mm thick impervious sprayed, closed cell free Rigid Polyurethane foam over deck insulation conforming to IS - 12432 Pt. III (density of foam being 40-45 kg/cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre, laying 400 G polythene sheet over PUF spray and providing a wearing course of 40 mm thick cement screed 1: 2 : 4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of Engineer-in-Charge and manufacturer specification.(BHEL will supply of Cement free of cost as per TCC)	SQM	1200	0.4437507491
A506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of High (minimum 85%) solids content urethane pre polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.(The water proofing compound shall have VOC content limit less than 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor to green building consultant.).	SQM	18488	2.6951418071
507	Providing and laying wearing course consisting of 25 mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.(BHEL will supply Cement free of cost as per TCC)	SQM	250	0.0274502920
A507	Providing and laying wearing course consisting of 20 mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.(BHEL will supply Cement free of cost as per TCC)	SQM	11515	1.2356775609
A510	Providing and laying Pressed Precast cement concrete flooring tiles of 20mm thickness and size 300X300 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making) (BHEL will issue cement free of cost for cement sand mortar)	SQM	8963	0.7480818753
B510	Providing and laying Heat Resistant Terrace light coloured Vitrified tiles of MIN. 300X300X20MM from johnson,varmora,Qutone or equivalent reputed / approved manufacturer with SRI (solar reflective index)>78,solar reflection>0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace and skirting along parapet, laid on 20mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1.including rubbing and polishing of the surface all complete, NOTE: All ceramic tiles to be used should be with appropriate % of recycled content.The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of ceramic tiles to be used).(BHEL will issue cement free of cost for cement sand mortar)	SQM	5495	1.4107079476

E-Tender Specification No: BHE/PW/PUR/NTPT-BAL CVL SG TG U1U3/2743

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
C510	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)(BHEL will supply cement free of cost for cement sand mortar only)	SQM	1758	0.1849468043
511	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	40210	0.8157328894
A513	Providing and mixing super plastisizer cum water proofing compound conforming to IS:2645/ 9103 in concrete or cement mortar all complete.	KG	525	0.0040615142
B514	Providing and applying two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of minimum 400 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams,wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384 complete all as per specifications & drawings.	SQM	423	0.0516653674
D514	Providing and applying Food grade epoxy coating complying to FDA Title 21, Part 175.300 of minimum 400 micron DFT over absolutely dry, clean and dust free surafe of water reating structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862 ,complete as per specifications & drawings.	SQM	346	0.0480494474
517	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	CUM	313	0.1074235931
518	Anti termite and Anti weeds chemical treatment of soil with Chloropyrifos emulsifiable or equivalents, concentrates (1%) conforming to IS :8944 all complete.	SQM	2915	0.2960569686
600	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.			
601	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			
a	12 mm wide joints.	SQM	205	0.0245673150
c	25 mm wide joints	SQM	223	0.0430616735
d	50 mm wide joints	SQM	231	0.0575268785
603	Providing and applying polysulphide based sealant conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:			
a	25mmX25mm	RM	913	0.0381884326
b	50mmX25mm	RM	425	0.0354006738
A603	Providing and applying polysulphide based sealant with VOC content limited to 250 grams per litre as prescribed by GRIHA, conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:			
a	25mmX25mm	RM	2135	0.0949354367
b	50mmX25mm	RM	2135	0.1723107377
A604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.(The sealant should have VOC content limited to 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor to green building consultant.			
b	12mm X 25mm	RM	965	0.0052466590
c	20mmX25mm	RM	490	0.0031759170
A605	Supply and instalLation of Polystyrene flexible board confirming to IS 4671 as joint filler at joint of comcrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.			
a)	100mm thick	SQM	511	0.1407337020
b)	50mm thick	SQM	75	0.0106039541
608	Supplying and filling in position hot applied bitumin sealing compund (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.			
a	10mm X 40mm	RM	168	0.0009828485

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
b	12mm X 25mm	RM	168	0.0009121972
c	20mmX25mm	RM	168	0.0010880629
A609	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:Note: The sealant should have VOC content limited to 250 grams per litre . All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor to engineer in charge.			
a	12mmX25mm	RM	120	0.0020349928
b	25mmX25mm	RM	120	0.0041902790
c	50mmX25mm	RM	120	0.0074781875
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)			
d	230 mm/225 mm wide and 6 mm thick	RM	414	0.0146451369
612	Providing and applying approved fire retardant sealant in joints/openings including cleaning of joints/openings, raking out groove, application of primer, scaffolding etc. all complete.			
a	25mmX25mm	RM	120	0.0298407435
b	50mmX25mm	RM	120	0.0587537025
615	Providing and fixing 300 mm wide Stainless steel strips (Grade SS 316) over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	2155	0.1365661262
700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Terms: a) On receipt of material site - 60% b) Execution as per item description - 40%	MT	35	0.5298275036
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. Payment Terms: a) On receipt of material site - 60% b) Execution as per item description - 40%	MT	8	0.1485541329
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.			
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	45	0.1407675874
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	16	0.0490690616
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	MS pipes of all diameters	kg	438	0.0052205671
b	PVC pipes / conduits of all diameters	kg	15341	1.1486713275
c	UPVC pipes / conduits of all diameters	kg	414	0.0333360312
d	Expansion anchor fasteners (galvanised) of HILTI make(HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:			
i	8mm Dia	Nos	62	0.0007510718
ii	10mm Dia	Nos	62	0.0008027471
iii	12mm Dia	Nos	62	0.0009066061
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:			
i	HST3 M8	Nos	192	0.0047371907
ii	HST3 M10	Nos	192	0.0067455834
iii	HST3 M12	Nos	170	0.0109148534
iv	HST3 M16	Nos	170	0.0188371102
v	HST3 M20	Nos	170	0.0384781535

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
vi	HST3 M24	Nos	170	0.0641431888
f	Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod, nuts, washers, chemicals all complete, etc:			
i	HAS-E5.8 M8	Nos	192	0.0128092214
ii	HAS-E5.8 M10	Nos	192	0.0150178772
iii	HAS-E5.8 M12	Nos	192	0.0200368258
iv	HAS-E5.8 M16	Nos	170	0.0307385394
v	HAS-E5.8 M20	Nos	170	0.0489557147
vi	HAS-E5.8 M24	Nos	170	0.0634495529
707	Providing, laying and fixing rails (52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	MT	73	1.3445112985
800	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level, drawings and as directed by engineer - in - charge.			
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. (BHEL will supply cement free of cost as per TCC)	SQM	218	0.0198785805
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement : 1 sand) using non shrink admixture etc. all Complete. (BHEL will supply cement free of cost as per TCC)	CUM	138	0.4213766720
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (BHEL will supply cement free of cost as per TCC)	CUM	73	0.2116905839
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with Conbextra GP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	30	0.2092182990
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	55	0.4112440651
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
A903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partial board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint confirming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately) (Note: All particle board shall have recycled content. The bidder is required to provide material cutsheet sample/ declaration from manufacturer mentioning the percentage of recycled content used in manufacturing of particle board to the engineer in charge)	SQM	30	0.0186559923

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A904	Providing and fixing single or double steel door shutters with 35mm (min) thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	400	0.3560588430
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	58	0.0577293443
A906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 8/10/12 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	KG	6975	0.6170805927
907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/ signal red color fire resistant paint and mineral wool insulation (64 kg/ cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	93	0.1907779878
A907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings panic bar ,panic trim, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification.all hardware used in the door should be fire rated and from approved manufacturer. Minimum ratings shall be 2 Hrs.Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.fire door should be from approved manufactured list of PVUNL Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	340	1.1132176230

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
B907	Providing and fixing Acoustic Wooden Fire Door of Single / Double Leaf both side laminated finish fully insulated wooden fire door of 120 min. fire rating, of min.50mm thickness, comprising of 75mm x 50mm hardwood internal timber frame work, with infill of 96 kg/m³, ceramic fiber blankets, coated with FR intumescent coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Matrix Mineral Engineered Boards on both sides (edge to edge on internal Hardwood frame) and clad with 3mm ply on both sides, with 55mm x 14mm teak wood lipping all round the shutter the main door frame will be made out of Hardwood of section 120 x 70mm and cotaed with Fire reatrdrnt Primer.The rebate shall be of 20mm x 57mm in Door Frame to accommodate the shutter in frame.Both frame and shutter shall be fitted with fire & smoke intumescent seal of size 20 x 4mm on all the three sides except bottom.The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The doors shall be provided with Pyroswiss Extra" or equivalent vision panel of 300mm x400mm. Test certificate for fire rating from International testing facility shall be provided by its relevant manufacturer. Provisions/ reinforcement for fixing all fixtures shall be built in on the doors prior to the supply.The rate should be inclusive of all fire rated hardware door handle 32X1200 H shape, door closer, dead lock, etc complete as per manufacture spec. (The rate should be inclusive of door frame) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	70	0.3427416782
C907	Providing and fixing automatically closing fire proof steel door satisfying LPA regulations (single or double shutter) with panic devices shall be minimum 44mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm center to center including all fittings, vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, LPA requirements and as per specification. Minimum ratings shall be 2 Hrs. All hardware fittings shall be fire rated. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	45	0.1473371357
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)			
a	Openable type	SQM	93	0.0324431487
b	fixed type	SQM	93	0.0208505857
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	Kg	2180	0.0415852830

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing,grills etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.All aluminium frames to be used shall have recycled content meeting required strength criteria for frame work as per engineer incharge. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of frames. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	Kg	18033	1.4909382701
A910	Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick Fire Retardant mineral filled Core comprising of around 70% Inorganic compound which is 100% non-combustible mineral and balance 30% is food grade virgin polymer Class B1 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. Cont.....	SQM	5135	3.6979374799
Cont.... A910	Cont..... The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Cont.....			

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
Cont.... A910	Cont..... Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of frames. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
911	Providing and fixing of door closers as per specification of approved make & quality all complete of following type :			
a	Over head hydraulic door closures as per IS 3564	Each	30	0.0089806699
b	Floor mounted Hydraulic door closers as per IS 6315	Each	30	0.0148945341
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	5485	0.1227245836
913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).			
a	Hand Operated	SQM	66	0.0238392854
b	Mechanically Operated	SQM	63	0.0300813305
c	Electrically operated	SQM	163	0.0869491363
914	Providing and fixing PVC doors (25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	188	0.0929521193
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.			
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	280	0.1122041573
h (a)	6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-vlaue 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	1583	0.4798082930
i(a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	475	0.4540505809
i(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	283	0.2705186651

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
i(c)	One outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick plain float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used in all exterior walls shall be of Asahi (India) Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent.The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance)≤ 59 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 to 2.5 W/MSq K,The properties of performance and colour of glass shall be as per detail design values as approved by Architect and engineer incharge.The glass should be free from distortion and thermal stress. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	168	0.1604748769
k(a)	One inner 6mm thick clear float glass and one outer 6mm thick reflective toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation . Glass to be used shall be of make Saint Gobain(India),Asahi (India) or equivalent .Outer glass should have solar factor 25% or less, Maximum U-Value of 1.8 to 3.3W/SQMK, VLT min 47%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28).The properties of performance glass shall be as per detail design values. (only single elevation area to be measured). Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	628	0.3686139232
l	6 mm thick laminated glass	SQM	56	0.0138081655
l(a)	10 mm thick laminated glass	SQM	250	0.1054948313
m	6 mm thick clear toughened safety glass	SQM	288	0.0999294794
n	8 mm thick clear toughened safety glass Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	638	0.2951656110
o	10 mm thick clear toughened safety glass Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	488	0.2822115292
p	12 mm thick toughened safety glass	SQM	88	0.0627028863
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	155	0.0441039910
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	50	0.0304410249
A919	Providing and fixing 12 mm thick double leaf automatic toughened glass sliding door of approved brand and manufacture, including fixtures, all necessary arrangement,sensor, motor, air curtain, frames, finishes, mechanical systems, electrcial systems, warranty all inclusive in working condition, all complete as per specifications.	SQM	35	0.0379751235
920	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealent, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	175	0.0887006770
A920	Providing and erecting Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet, both side UV coated, minimum 55% light transmission, solar control, approved make, texture and shade, fixed to powder coated Aluminium section with 60mm width top & bottom with EPDM rubber gasket in approved shape like dome, pyramidal etc, sealing of joints with sealent, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc as per drawing, standards, specification, instruction of engineer in charge etc all complete.	SQM	68	0.0910760495

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
921	Providing & fixing 120 minutes Fire Rated, Fully Glazed non-load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/ sqm) pressed to form a suitable profile & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and colour. The glass panels thickness shall be minimum 11mm thick or more (as per manufacturer test report), clear, toughened, inter layered glass, 120-minute fire rating for both integrity & radiation control (EW120), with 20- minute minimum full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report / certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) complete in all respect and comply with the requirement of NBC-2016, IS16231(Part-3) and as per specification. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.	SQM	5	0.0062240858
A921	Providing & fixing Fully Glazed Fire Rated partitions with minimum 25mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 11mm thick or more, clear, toughened interlayered glass, with 120 minutes' fire rated for both integrity & radiation control, and 6mm thick toughened tinted glass with 8mm gap or more as per manufacturer specification. The partitions shall be 120 minutes Fire Rated, Fully Glazed non-load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a suitable profile to accommodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and colour. The glass panels shall be minimum 11mm thick, clear, toughened, interlayer 120-minute fire rating for both integrity & radiation control (EW120), with 20-minute full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report /certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6 mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. Cont.....	SQM	210	0.3125441205
Cont... A921	Cont..... The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) complete all respect and comply with the requirement of NBC-2016, IS16231(PART-3) and as per specification. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
922	Providing and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 12 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within1 9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any aother accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	NOS	32	1.2739234294

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
923	Providing and fixing of fully glazed steel door with 120 minutes' fire rating, of integrity and radiation control (EW 120) fabricated with 1.6 mm thick galvanized steel sheet. The door frames are manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 35 mm x 60 mm on the vertical sides and 50 x 60 mm on the horizontal side. The door shutter would have a top rail and side rail 60 mm x 60 mm and a bottom rail of 110 mm x 60 mm. The frame shall be finished with approved fire resistant primer or Power coating of min. 30 micron as per approved shade. The sections have a special insulating infill. The test is conducted in IFTS as per EN 1634-1: 1999. The glass panels shall be minimum 11mm thick or more, clear, toughened, interlayer 120-minute fire rating for both integrity & radiation control (EW120), with 20-minute full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report /certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. Cont.....	SQM	53	0.3411319482
Cont... 923	Cont..... The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
A924	Providing and fixing in position Acoustical wall panelling at all heights with 12mm thick compact laminates made out from High Pressure thermosetting resin treated Kraft as core material and design paper as a finish surface of size 600 x 600mm or 1200x1200mm having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non-combustible as per BS:476 (part-4) fire performance as per BS:476 (part 6 & 7), EN:BS1D0 ,humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991, having Anti-bacterial and anti-termite property under JIS Z2801:2000, Chemical resistance, Scratch resistant ,should have the density >1.35kg/cm3 and fulfilled the criteria of FSC and Green Guard Gold certification and manufactured under EN438-2&3:2005 standard . comprising of a frame made from especially fabricated galvanised mild steel sheet 0.50 mm thick pressed section (galvanizing @120 grams per sqm including both sides) i.e. Vertical studs of size 48 x 34 x 36 ion for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately). Weight of aluminium section only shall be measure. All aluminium frames to be used shall have recycled content meeting required strength criteria for frame work as per engineer incharge. Cont...	SQM	1400	1.0545923464
Cont... A924	Cont..... The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of frames.d to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.r the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.ing shall be complete as approved by engineer incharge.The contractor should provide the material cut sheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of compact laminate panels.(Glass wool/mineral wool to be paid separately). Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
1000	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.(BHEL will supply cement free of cost for cement sand mortar as per TCC)			

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	CUM	426	0.3333164307
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	CUM	3910	3.7217237345
c	Using burnt clay bricks of class designation 5.0 of nominal dimension Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	CUM	98	0.0934897125
A1002	Providing Autoclave Areated concrete blocks blocks having dimensions of 625 mm x 250 mm in cement mortar 1: 6 (1 part Cement 6 parts coarse sand having modulus of fineness 1.1& suitableplasticizer) conforming to I.S. :2185(part-III) in walls, chambers etc. in thickness varying from 100mm to 300 mm at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	CUM	4010	4.2451606052
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	SQM	225	0.0262114387
A1003	Providing factory made composite modular light weight aerated concrete panels of minimum 2 hours of fire rating, consisting of two fiber reinforced cement sheets(min. 4 mm thick) on either side of light weight concrete core, having min. compressive strength of 35 Kg/Cm2 and density in the range of 700-900 Kg/Cu.M. to provide external wall and internal partition at all levels. AC panels shall be minimum 75mm thick and 3.0M height and shall be capable of sustaining wind pressure with limitiing deflection of span/250. The panels shall be fixed in position through tongue and groove jointing system by screwing the panels to top & bottom U channels(channels min. 1.25 mm thick and galvanized to min. grade 180 as per IS:277), fixing U profiled top & bottom channels to concrete/primary steel members which are placed at max vertical spacing of 4.5 M with the help of galvanized steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fiber glass tape(min. 50 mm wide & min. 0.5 mm thick) or by any other suitable material, so as to ensure that entire construction done is weather proof and panel surfaces are fush for painting, creating opening for doors/windows/ventilators/ducts/pipes/fans/AC etc. and finishing the opening with same U profiled galvanized steel channel which is used at top & bottom. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	1055	0.3669921639
B1003	Providing Autoclave Areated concrete blocks blocks in cement morat 1:4 (1 cement 4 coarse sand having modulus of fineness 1.1) in partition wall, chambers etc, in thickness 100mm/125/150 mm at all heights, places and position above or below plinth/grade level inculding joint reinforcement i.e. 1 number of 6-8 mm diameter bar placed at every alternate course to be anchored properly with the main structure, (joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in .I.S 6041 – 1985, I.S -1905) including raking out joints, curing, scaffolding etc. complete excluding plastering and painting as per specification and drawing. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	CUM	740	0.7664493327

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	53	0.0113170741
A1005	Making openings in existing AAC block work or partition wall including making good the broken edges/surface with cement mortar etc. all complete at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	53	0.0164020993
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	33	0.0081157429
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at all level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	43	0.0050450403
1011	Providing and filling brick bats in soak pits all complete.	CUM	38	0.0061671582
1100	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.			
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (BHEL will supply cement free of cost for cement sand mortar as per TCC)			
b	50mm thick	SQM	899	0.0381679319
1200	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (BHEL will supply cement free of cost for cement sand mortar as per TCC)			
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	33430	1.6255561504
1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	41406	1.6345676561
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	12278	0.2721980297
1205	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	300	0.0056459994
1206	Providing drip course on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instruction of engineer in charge. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	RM	1168	0.0080606790
1207	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	RM	7815	0.0408575922
1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately) (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	88	0.0055021555
1300	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	34723	0.4088410760
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	1210	0.0216699367

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1305	Providing and applying two or more coats of low VOC (volatile organic compound) acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 150 grams per litre All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	8390	0.1565778767
1306	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	2255	0.1157841587
1307	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	658	0.0260979224
1309	Two or more coats of fire resistant transparent paint (@3.5 litre per sqm per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made seperately.	SQM	50	0.0022128916
A1312	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification. Note: The paint should have VOC content limit less than 200 grams per litre All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	2128	0.0292363959
A1316	Providing and applying 2 mm thick Acrylic wall putty in two coats over cement plastered surfaces including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	13530	0.1717602680
1317	Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	88	0.0013830360
A1319	Providing and applying two or more coats of Premium Acrylic Smooth Paint with Silicone additives weather coat paint of approved brand and manufacture and required shade over one coat of primer of water proof cement paint after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.(The sealant should have VOC content limit less than 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor for green building documentation).	SQM	18165	0.5268242331
1320	Providing and applying acid alkali and oil resistant high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring	SQM	150	0.0082389167
1322	Providing & fixing GRC Tile of size 250mmx75mmx15mm conforming to IS:1237 in approved design, size, texture, thickness, pattern and color on wall cladding upto all height as per the architectural drawing & approval from architect/customer,including necessary scaffoldings required for installation. The Tile shall confirm to IS :1237-1980. The composition of tiles should be '43' Grade White Portland cement, reinforced with Alkali Resistant Glass Fiber and the pigmentation should be done with exterior grade synthetic inorganic iron oxide pigments. The pigmentation should be homogeneous and in accordance with British Standards BS EN 12878:1999. The other additives should be fine washed graded quartz, super plasticizers and integrated water proofing agents and others. The tiles should be produced with high vibration technology and should have compressive strength equivalent to M-40 Grade@28 days. The top surface of the tiles should be sealed with acrylic lacquer resulting in surface water absorption of tiles, less than 1% and water absorption by 24 hrs immersion method, less than 8%. The tiles should be applied on a rough plaster of cement mortar 1:3 (1 cement: 3 coarse sand) and the fixing of tiles should be done by tile adhesive as per manufacturer's laying instruction. Installation to be done by specialized vendor in strict supervision if required as per the manufacture's specification.	SQM	2685	0.8960618187
1400	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.			

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement:1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will supply cement free of cost as per TCC)	SQM	40760	2.8728903179
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring without metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will supply cement free of cost as per TCC)	SQM	2423	0.1620907062
B1401	Providing and laying 70 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 58mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will supply cement free of cost as per TCC)	SQM	2400	0.2517562724
C1401	Providing and laying 70 mm thick heavy duty cement concrete in flooring without metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 58mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will supply cement free of cost as per TCC)	SQM	460	0.0462074325
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification. (Quoted item rate shall be inclusive of providing glass joint strips). (BHEL will supply cement free of cost as per TCC)	SQM	1813	0.1092157964
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping pigment content is 3.5 kg per 50 Kg of Cement) of size 300X300X25 thick of approved shade as per IS 1237, including minimum 25mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc.(inclusive of cost of cement for tiles manufacturing) all complete for following: (BHEL will supply cement free of cost for cement sand mortar per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	Laid in floors	SQM	3085	0.5284422650
b	Laid in skirting	SQM	363	0.0802481124
A1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
Ab	80mm	SQM	2308	0.4011937998

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of cement sand mortar of 1:4 (1 cement : 4 sand) by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	315	0.1627951854
A1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 50 mm thick of 1 : 4 (1 cement :4 sand) by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	2485	1.3682224967
1413	Providing and laying 14 to16mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 35mm thk of 1 cement : 4 sand by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	345	0.1722824433
A1413	Providing and laying 14 to16mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 55 mm thk of 1 cement : 4 sand by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	70	0.0350394545
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	490	0.2541601086
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
b	10mm thick tiles In flooring	SQM	1723	0.3048695666
c	10mm thick tiles In skirting and dado upto specific height	SQM	363	0.0630141244
A1416	Providing and laying heavy duty vitrified antiskid tiles 18-20 mm thick of size 600x600 in flooring from reputed / approved johnson,varmora,quate or equivalent manufacturer, complete including minimum 30mm thick underbed for flooring of cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc. all complete.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor should provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	8340	2.2262298999
C1416	Providing and laying vitrified ceramic tiles of polished variety of size 800x800 from reputed / approved manufacturer johnson,varmora,quate or equivalent, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	10mm thick tiles In flooring	SQM	345	0.0653057997
b	10mm thick tiles In skirting and dado upto specific height	SQM	45	0.0083576853

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
D1416	Providing and laying vitrified ceramic tiles of polished variety tiles of 18-20 mm thick of size 600x600 from reputed / approved manufacturer johnson, varmora, quotone or equivalent, complete including underbed of cement mortar 1:3 minimum 30mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	1425	0.3642781060
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
b	10mm thick tiles In flooring	SQM	915	0.1686461920
c	7mm thick tiles In skirting and dado upto specific height	SQM	275	0.0418675491
A1417	Providing and laying vitrified ceramic tiles of matt finish of size 800x800mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
b	10mm thick tiles In flooring	SQM	50	0.0093596791
c	10mm thick tiles In skirting and dado upto specific height	SQM	50	0.0077384281
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	SQM	380	0.2466124558
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. (BHEL will supply cement free of cost for cement sand mortar as per TCC)			
a	300X300 mm	SQM	190	0.0216573991
A1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry etc. all complete. All tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC)			
a	300X300 mm	SQM	840	0.0983121252
b	600X600 mm	SQM	570	0.0671659434
A1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 300x300mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,varmora,quotone or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk cement sand mortar of 1:3.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	2855	0.4801407096

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	20mm thick	SQM	340	0.1708800926
b	38mm thick	SQM	70	0.0538164180
A1427	Providing and fixing designer ceramic tiles of approved color and design of size 200x300mm / 300x600mm in dado of approved size of reputed / approved manufacturer (Kajaria,jhonson,varmora,quotone or equivalent) , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 45/47mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	5mm thick	SQM	135	0.0228405107
b	7mm thick	SQM	835	0.1536139134
A1428	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	100	0.0051531350
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, degreasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementations compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm – 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design for Uniformly distributed load (UDL) of 13 KN (1300 kg/ sqm), for the same all complete as per specification. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	250	0.1461370813
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.			
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	1700	0.0124434276
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	1700	0.0295090046

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JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1431	Providing and fixing 15mm thick wooden panel flooring and skirting of pergo,greenlam or equivalent as per EN13329 of approved color,shade multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers. Top layer of flooring is made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties. The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge. (The contractor should provide the material cut sheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of wooden flooring to be used). Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	855	0.3429831122
1432	Providing and fixing Glass mosaic tiles at finished plain wall surface of size 24 mm x 24 mm x 3.8 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer in-Charge: (BHEL will supply cement free of cost for cement sand mortar as per TCC) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	675	0.5199903781
1500	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
A1510	Providing and fixing (FINSIH as approved) finished Acoustical Lattice wooden wall paneling consisting of base frame treated with anti termite chemical of approved make. Panels to be installed as per specification. The Timber melamine effect acoustic wall panels made out of Fire Rated MDF core material. The acoustic wall panels shall be in size of 128x2440x18mm (thk). The back of timber melamine panels shall be laminated with Soundtex black acoustic tissue to provide NRC not less than 0.8. The acoustic timber wall panels shall be with tongue and groove detailing along the length of panels, with square edges on 2 sides along the width of panels. The wall panels shall be clipped into aluminum channels and clips Keel and Fastener system at 600mm c.c. Density -800kg /m3, R.H 70, Fire Rated Euro Class B and C formerly Class 0 and Class 1 BS476 part 6 and 7 respectively. Perforated panels having perforation to 25/30 mm diameter holes, at 32/35 mm c/c at the back face, and front of the panels to have cut with grooves of 3mm at 16mm c/c. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	2238	0.6286685813
1511	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a)	For insulation in Sandwich Cladding	SQM	4208	0.3914407103
b)	For underdeck insulation below RCC slabs	SQM	60	0.0061866423
1514	Providing and installing under deck insulation with resin bonded rock wool 50 mm nominal thickness conforming to IS 8183 having a density of 48kg/cum using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.6 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	6200	0.4754792530
1600	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.			

E-Tender Specification No: BHE/PW/PUR/NTPT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1601	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
aa	12.5mm thick GRG board conforming to IS: 2095 with galvanised light gauge steel load bearing supporting GI frame (minimum 0.8mm thk and grid size of 600x1200mm.) and finished flat (seamless). All GRG board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	4675	0.5371127133
b	12 mm thick GRG board in profile (dome ,curved profiled etc.) with galvanised light gauge steel load bearing supporting GI frame and finished smooth (seamless).	SQM	595	0.1024759735
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut- outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	3680	0.6842241717
A1604	Providing and fixing Metal False Ceiling System of 600x600 mm module (of Armstrong/ Hunter Douglas/ Durlam make) which includes providing and fixing GI Clip, 'C' wall angle of size 20x30x20mm made of 0.5mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300mm center to centre, suspending the main C carrier of size 10x38x10mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive) Fixing with clip in tiles into spring 'T' with GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5mm thick with 25mm height, made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation and backed with a black Glass fiber acoustical fleece. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. Cont.....	SQM	3458	0.9859320532
Cont... A1604	Cont..... The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
B1604	Providing and fixing pre-painted coil coated steel false ceiling system, at all levels, for all kind of works, consisting of 0.5mm thick galvanised as per IS:277, along with galvanised supporting steel members exposed faces of galvanised member to be pre-painted with regular modified polyester coating/super polyester coating minimum 20 DFT, to form panels of specified size for tile type panels and roll formed stove enamelled 0.6mm thick steel carrier, for fixing of lineal type (100 mm nominal width) by clip on arrangement, suspended from RCC slab/structural steel or catwalk way steel channel grid above with 4mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25mm leg width along the perimeter of ceiling, including all labour, material, support grid system (members minimum 0.8mm thick and galvanised as per IS:277) anchor fasteners for making suspension arrangement from RCC, providing opening for AC ducts, return air grills, insulation light fixtures etc all complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	100	0.0178895026
A1607	Providing and Fixing 12mm thick Gypsum board plain/ mineral fibre based acoustic ceiling board in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per IS:277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	100	0.0265214909
B1607	Providing and Fixing 12mm thick Calcium silicate board of HILUX or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per IS:277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	585	0.1370322211
1700	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.			
1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	RM	4143	0.9592279195
1711	Providing and making Khurras 45 x45 cm with average thickness of 3cm cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 20mm nominal size) over PVC sheet 1m x1mx 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete in all respects as per specification and drawing. (BHEL will supply cement free of cost for cement sand mortar as per TCC)	EACH	160	0.0267563173
1800	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.			

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	8006	2.0752656619
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	1216	0.4760873280
1803	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	128	0.0432353366
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	290	0.0080649147
1808	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	60	0.0788899821
1809	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	each	68	0.1002232665
1810	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	100	0.1135265383
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	83	0.0011273701
1823	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	256	0.0789155657
A1837	Providing & fixing G.I chicken wire mesh 12.5mm X 24G for miscellaneous applications	SQM	213	0.0107281444
1842	Providing engineering consultancy services for Architectural design & drawings of GRIHA compliant buildings in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views, panoramic views, walkthrough, with color schemes, energy simulation, solar analysis, Daylight Modelling, lighting design, as per ECBC compliance, GRIHA norms and specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems and taking approval on drawings from BHEL/customer. All activities required for obtaining minimum 3-star rating as per specification for GRIHA compliant buildings etc. all complete. perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers or more) as required in the desired format. The bidder should have experience in design of green building in industrial power plant setup and completed similar kind of buildings with green building rating. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder. The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer. HVAC design parameters & space requirement as per GRIHA norms shall be provided by bidder for further detail engineering by BHEL. Engineering services of interior architecture, acoustic design, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, landscaping, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing, planning for parking etc. are also included in this item. Cont.....			
Cont.... 1842	Cont..... Approximate sizes of buildings are mentioned below, however, for any variation during detailed engineering stage, no extra payment is admissible. The 3-D model shall be PDS/PDMS compliant for transfer to complete plant PDS/ PDMS model. Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works. The above scope shall also include the landscape design and BOQ along the buildings as per specification.			
a	Service building of Approx. 4000 Sq.M. floor area in Ground+ 4 storeys	LS	1	0.5700866782
b	Administration building of Approx. 4500 Sq.M. floor area in Ground+ 3storeys	LS	1	0.6413478518
c	Auditorium building of Approx. 1200 Sq.M. floor area	LS	1	0.1710254613
d	canteen building of Approx. 1100 Sq.M. floor area	LS	1	0.1710254613
e	IT Building of Approx. 1200 Sq.M. floor area Ground+1 storey	LS	1	0.1710254613

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1843	Registration of Green Building Project with ADaRSH and obtaining GRIHA rating for Service building, Administration Building, Auditorium & Canteen Building IT Building. This shall include all expenses and services for obtaining GRIHA rating including complete documentation, replying to queries from ADaRSH/GRIHA, incorporating comments & resubmission, obtaining approval from BHEL/Customer, engagement of specialists as per specification & GRIHA norms, cost of visits of ADaRSH/GRIHA team at site ,Priliminary audit of the buildings and site and all incidental cost involved upto completion of obtaining final GRIHA rating certification with final audit of the buildings .The items 1842 & 1843 shall completely cover all expenses & services,audit required for registration to obtain final GRIHA certification as per contract /customer requirements.	LS	1	0.2850433391
1844	Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme, collection of required data, submitting to ground water board and getting approval from Customer and Central Ground water board at start & completion of work etc. complete as per statutory norms. The Engineering firm/person should be approved/accepted by central ground water board and shall have similar experience of rain water harvesting for complete power plant. The scope shall include rain water harvesting for entire plant including Coal handling plant, ash handling plant inside plant boundary. The scope shall include preparation of rain water calculations, calculations for ground recharge/collection, economical design of rain water harvesting with diferent options under discussion with BHEL and submit design, drawings, report to Central Ground water board, obtain approval from Central Ground water board & Customer and on completion of work get the completion approval for rain water harvesting from Central Ground water board. This includes visits to site with/without ground water board officials and rate of this item shall include all expeses of consultancy, site visits etc. required from start of work till final obtaining of compeltion approval from Central ground water board. Payment for execution of rain water harvesting ponds/ground water recharge system shall be paid separately.	LS	1	0.2850433391
1849	Providing and laying in position 300 x40 mm GI race way with standard length 2500 mm single compartment trunking raceways made from 14 gauge(minimum) pregalvanised sheet including fasteners, floor support, connectors, bends cross-way, earthing stud for fixing, 350x350x50 mm junction boxes of pre-galvanised sheet with cover plate etc. all complet as per requirement, drawing and instruction of Engineer in-charge.	RM	1100	0.2714686446
2000	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.			
A2003	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2008)	RM	491	0.1688888121
2006	Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2008)	RM	205	0.0103459161
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	6	0.0820533615
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	10	0.1505733689
2100	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.			

E-Tender Specification No: BHE/PW/PUR/NTPT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete - 15mm nominal bore. (Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/ declaration from the manufacturers mentioning the same to Engineer in charge.)	NOS	260	0.0387699075
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	107	0.0124635894
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:			
a	25mm nominal bore.	NOS	29	0.0023040435
b	50mm nominal bore.	NOS	29	0.0040806595
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:			
a	15 mm nominal bore.	RM	1243	0.0675915451
b	20 mm nominal bore.	RM	1243	0.0756484967
c	25 mm nominal bore.	RM	1243	0.0886481545
d	50 mm nominal bore.	RM	490	0.0508305985
e	40 mm nominal bore.	RM	400	0.0340845616
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:			
a	15 mm nominal bore.	RM	248	0.0104223279
b	20 mm nominal bore.	RM	248	0.0120839026
c	25 mm nominal bore.	RM	2011	0.1186058030
d	50 mm nominal bore.	RM	1056	0.0965158557
e	40 mm nominal bore.	RM	1000	0.0708308280
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	13	0.0024028197
A2106	Providing and fixing 600mmx900mmx6mm thk mirror from reputed mirror manufacturer, edge mounted with teak beading and minimum 12mm thick plywood backing. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	107	0.0190507582
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	60	0.0111483244
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	107	0.0068901050
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	117	0.0073151984
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	60	0.0006758460
A2114	Providing & fixing in position Polyethylene water storage tank, ISI: 12701 of approved make including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.			
a	500 litres capacity	NOS	6	0.0040132273
b	1000 litres capacity	NOS	16	0.0208461806
c	2000 litres capacity	NOS	15	0.0390894476
d	5000 litres capacity	NOS	8	0.0535153455
A2115	Providing and installing approved brand single tap water cooler RO system of 80 L cooling capacity all complete with three year free maintenance and guarantee.	NOS	2	0.0338538014
2116	Providing and fixing electric operated hand dryer with photovoltaic control of reputed make, complete with all fittings and fixtures.	NOS.	55	0.0304764352
2117	Providing and fixing gyser of 25 litres capacity of reputed make with inlet and outlet connections, mounting plates, fixtures and fittings etc all complete.		47	0.0662383283
2200	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
2201	Supply and fixing glazed vitreous china Wash Basin of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.			
a	White	EACH	12	0.0213675087

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2201	Supply and fixing coloured glazed vitreous oval shape china wash basin 450x550mm conforming to IS: 2556 mounted over 18 mm thk granite beveled edge counter counter.The Basin shall be fitted with approved shape bib cock, photo-voltic control system for water control with flow rate less than 5 LPM (litres per minute) at 45 psi,CP brass chain with rubber plug, 40mm CP brass waste and bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification	EACH	72	0.1261327856
2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 40mm CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	9	0.0109485694
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	35	0.0382721297
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.			
a	Floor Mounted	EACH	1	0.0008384963
b	Wall mounted	EACH	7	0.0074563314
A2204	Providing and fixing wall mounted coloured glazed vitreous water closet with flushing valve system,water faucet ,Toilet paper holder, open front solid plastic seat and plastic cover,including necessary CP connection etc all complete.having flow rate of 6/3 LPF (litres per flush) or less and faucet having flow rate of 5 LPM (litres per minute) or less.	EACH	48	0.0449524836
A2205	Providing and fixing white/coloured glazed vitreous china Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete having flow rate of 6/3 LPF (litres per flush) or less at 45 psi.	EACH	115	0.1202858453
A2206	Providing and fixing white/coloured water efficient flat black glazed vitreous china urinals of size 440x265x355mm with photo voltaic control flushing system as per IS: 2556(pt-6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi.	EACH	85	0.2026495979
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.			
a	75mm dia pipes	RM	998	0.0766000011
b	110mm dia pipes	RM	998	0.1010233028
c	160mm dia pipes	RM	198	0.0330383473
d	200mm dia pipes	RM	198	0.0457089770
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.			
a	200mm dia	RM	246	0.0353971158
b	300mm dia	RM	289	0.0605645428
c	450mm dia	RM	272	0.0884617843
d	600mm dia	RM	233	0.1018240168
e	900mm dia	RM	196	0.1468552841
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.			
a	150mm dia	RM	171	0.0109429783
c	300mm dia	RM	108	0.0097537672
d	450mm dia	RM	108	0.0122651899
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	80	0.0879433364
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	80	0.0755278644
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:			
a	100x100mm P or S Type.	EACH	80	0.0160788318
b	150x100mm P or S Type.	EACH	80	0.0169828965
c	150x150mm P or S Type.	EACH	80	0.0186388801
A2214	Providing and fixing SS floor traps size 100 mm Inlet and 100 mm Outlet all complete as per specification.	EACH	45	0.0095616366

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patraru, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	23	0.1487640535
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	8	0.0925809038
2218	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	128	0.0486160127
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	8	0.0055501035
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.			
a	75mm dia pipes	RM	135	0.0273025513
b	100mm dia pipes	RM	135	0.0360275553
c	150mm dia pipes	RM	53	0.0168258373
d	200mm dia pipes	RM	53	0.0230666963
e	250mm dia pipes	RM	38	0.0241547592
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following (Excavation, backfilling, concrete to be paid separately)			
a	75mm dia	RM	233	0.0536383498
b	100mm dia	RM	233	0.0656478737
c	150mm dia	RM	100	0.0403447354
d	200mm dia	RM	130	0.0743083258
A2221	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiffmixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :			
a	150mm dia pipes	RM	75	0.0045789455
b	200mm dia pipes	RM	75	0.0059265712
2222	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.			
a	Upto 75 mm dia	RM	91	0.0044335768
b	100 mm dia	RM	91	0.0058218651
2223	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 50 mm domestic water inlet pipe	NOS.	15	0.0173910471
2224	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 150 mm sewer water outlet pipe	NOS.	15	0.0347841274
2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%			
a	Minimum galvanisation of 610 g/sqm	MT	20	0.3559822618
A2308	Supplying, fabrication, erection and alignment of factory made chequered plates conforming to IS 3502 with mild steel of grade E250A, quality BR, semi killed, conforming to IS:2062 or equivalent grade conforming to ASTM & BS standards only in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Min. thickness of chequered plate shall be 6 mm excluding projection. (Supply of chequered plates by BHEL Free of cost)	MT	1	0.0018660736
2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.			
a	20 Tons	EACH	1	0.0022643975
b	25 Tons	EACH	1	0.0025595401
c	40 Tons	EACH	1	0.0027565842
2319	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	270	0.1233987353

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743

Revised-Chapter XI-BOQ and Percentage Weightage-2743

JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2322	Supply, fabrication and fixing of GI pipe hand railing of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete as per specification.	MT	1	0.0169379982
2400	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.			
	Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating, shuttering, formwork and curing (excluding cost of reinforcement), with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specification and as per direction of engineer in charge for the following.			
2418	Concrete of grade M15 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply cement free of cost as per TCC)	CUM	108	0.0502819925
A2419	Providing and laying cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required) with mechanical paver, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete in road work. (Excluding the cost of reinforcement and dowel bar)(BHEL will supply cement free of cost as per TCC)	CUM	1531	0.9257497387
2420	Supplying and filling sand for preparation of road sub-base/ sub-grade in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/ compaction by manual/ mechanical means, dressing, royalty (if any) etc all complete.	CUM	75	0.0107288221
2421	Providing & laying dry lean cement concrete of grade M10 for road work with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (BHEL will supply cement free of cost as per TCC)	CUM	1061	0.5516739837
	REINFORCEMENT			
2422	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	MT	23	0.3481723353
2423	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe- 500/Fe-500D conforming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer.	MT	43	0.0680257876
2424	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	4	0.0362903372
	MISCELLANEOUS			
2425	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	315	0.0293216179
2426	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	348	0.0009881007
2427	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	788	0.0120244336
A2427	Providing & laying polythene sheet of specified thickness (min. 125 micron), above dry lean concrete sub base, before laying of concrete slab pavement. Payment Terms: a) On receipt of material at site - 60% b) Execution as per item description - 40%	SQM	25977	0.4369307871
A2428	Providing & laying 75 mm thick precast interlocking concrete pavers of grade M-35 of approved colour and pattern as per specification and recommendation of manufacturer.(Rate is inclusive of cement cost)	SQM	890	0.1547053649
A2429	Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	1195	0.0123802311
2700	RAIN WATER HARVESTING			
2701	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	123	0.0090811404

E-Tender Specification No: BHE/PW/PUR/NTPRT-BAL CVL SG TG U1U3/2743**Revised-Chapter XI-BOQ and Percentage Weightage-2743****JOB Description: Balance Civil and Architecture Works for SG Island Unit-1 (C-Row to Chimney), TG Island Unit-1 with GRIHA Building and TG Island Unit-3 at 3X800 MW PVUNL Patratu, Jharkhand**

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2702	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	423	0.0817622852
2703	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	123	0.0203836437
2704	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	61	0.0196234229
2705	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	61	0.0196234229
2706	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	27	0.0086845108
2707	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	128	0.0384479954
2708	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	328	0.0135870627
2709	Providing and laying Stone, sand filter filter media in recharge pits for rainwater harvesting. The sand & stone filter shall be graded and washed to provide natural filter media for rain water from open drain to recharge wells all complete as per drawing. Payment for Civil works including recharge wells shall be made separately and not included in this item. Payment for this item shall be made for total volume of sand/stone filter media as required as per specification and details all complete.	CUM	356	0.1545335655
Total				100