



MAHARASHTRA METRO RAIL CORPORATION LIMITED
Pune Metro Rail Project
Joint Venture of Govt. of India & Govt. of Maharashtra
CIN: U60100MH2015SGC262054

Date: 18 March 2024

Corrigendum- II

Subject: Detailed BOQ

Tender No. P1C-24/2024 (ICB) 20 February 2024

Name of Work: Execution of balance Civil, Structural, Architectural, Plumbing & Site Development Works of Station Box Including Works of Entry-Exits at Range Hills and other stations of Pune Metro Rail Project.

Reference: Further to NIT & Tender Document dated 20 February 2024, Corrigendum I dated 07 March 2024.

Detailed BOQ is attached as Annexure-A as per the PART 4: Bill of Quantities & Financial Bid
(Page No 1-29)



(ED/Procurement & Contracts),
Pune Metro Rail Project,
Maharashtra Metro Rail Corporation Limited.

Name of Work:		Range Hill Station & other balance works of other stations of Pune Metro Rail Project	
ABSTRACT OF AMOUNT FOR ALL SCHEDULES			
Item	Schedule	Description of Schedule	BOQ Amount in INR
1	SCHEDULE-A	Construction of Stations - General Works	3,46,88,443.57
2	SCHEDULE-C	Construction of Stations - Structural Works	35,83,64,057.63
3	SCHEDULE-D	Architectural & Site Development Works NDSR ITEMS	17,40,30,266.49
4	SCHEDULE-E	Architectural & Site Development Works DSR ITEMS	94,62,599.86
6	SCHEDULE-G	Miscellaneous Works (Fixed)	5,00,00,000.00
7	SCHEDULE-H	Architectural & Public Health Engineering	1,48,25,964.39
8	SCHEDULE-I	Non Scheduled Items (NS CIVIL)	8,30,45,875.00
9	SCHEDULE-J	Non Scheduled Items (PLUMBING)	18,13,108.52
10	SCHEDULE-K	Non Scheduled Items (NS ARCHITECHURAL)	7,15,19,919.32
		Grand Total	79,77,50,235



Name of Work : Range Hill Station & other balance works of other stations of
Pune Metro Rail Project

SCHEDULE -A

GENERAL WORKS

SR NO	DESCRIPTION	Amount in INR
1	Sub-head G01: General	87,14,674.10
2	Sub-head G02: Geotechnical Work	-
3	Sub-head G03: Traffic signals, Signage etc	-
4	Sub-head G04: Road Work	2,59,73,769.48
	GRAND TOTAL OF SCHEDULE-A	3,46,88,443.57



Name Of Work :- Range Hill Station & other balance works of other stations of Pune

SCHEDULE-A- Construction of Stations - General Works

Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
G1	General				
2	Providing temporary barricade and arrangement for traffic diversion such as traffic signals during construction at site, for day and night as per requirement and drawing. This item will be payable only at two stages of construction. First stage involves construction of foundations and substructures: pile, pile cap & pier. The construction of typical superstructure viaduct will not require barricading, however particular superstructure works will need barricading. Second stage involves construction of particular superstructures. In both the stages of construction, the barricading and arrangements for traffic diversion has to be kept continuously. Nothing extra will be paid for dismantling and re-erecting the barricades the traffic signals and other arrangements at the same				
	The construction barricading will be limited to a width of 8.0m (outside to outside of barricading). This can be increased at specific locations with approval of Engineer.				
(i)	2m height	RM	14,880.99		
	(Note: Barricading may be required to be shifted laterally number of times but the same will be paid only once).				
2.1	For Installation 2m Height 70%	RM	10,416.69	408.25	42,52,613.69
2.2	For removal 2m Height 30%	RM	4,464.29	408.25	18,22,546.39
(ii)	1m height	RM	8,171.87	323.00	26,39,514.01
	SUB-TOTAL OF G1				87,14,674.10
G2	GEOTECHNICAL WORKS				
	SUB-TOTAL OF G2				
G3	TRAFFIC SIGNALS, SIGNAGE ETC.				
1	Traffic Signals, Signage's & other Traffic aids (This shall include item no 1(i) to 1(vii)) (i) Providing and fixing of retro-reflective traffic sign boards using high intensity Retro Reflective Sheeting (encapsulated! lens type) as recommended by IRC and MoRT&H on 2 mm Aluminum Substrate properly processed on front side of Aluminium Substrated with Pressure sensitive Heat vacume applicator. Logos and Borders may be out of cut- sheet or screen printing with appropriate ink which should also have 7 years warranty. The Retro-Reflective traffic sign boards using high intensity Tape should have M.S. angle support of size 25 x 25 x 3 mm or 35 x 35 x 4 mm depending upon the size (ii) Providing and fixing and maintaining the road infrastructure during executions, refixing as where required. (iii) Road delinator - Supply of Rectangular Metal Delineator (Black colour Rectangular Delineator with High Intensity Reflective Sheet)	LS per RMT	8,174.27		
	Height: 1200 mm approx Size : 100 x 40 mm rectangular Reflective : 1 No. Band of 120 mm High Intensity Grade Red Colour Reflective tape and 3 Nos . Bande of 150 mm white colour paint. (iv) Portable Signage - Supporting of Retro-Reflective Sign Board of size 900 mm Triangular or 60 mm Dia Circle or 90 x 600 mm by using high intensity Retro Reflective Sheeting on 2 mm thick Aluminum Substrate with M.S. Back Support frame. (v) Reflective lights - Hazards warning Blinkers both sides (Rechargeable with 2 Nos. sealed maintenance free Batteries) (vi) Traffic Cones Square Base Cone with heavy base of size 390 mm x 390 mm Height: 705 mm Cone Colour: Red colour (UV stabilised) Body Material : Low Density Poly Ethylene Reflective Part: 1 No. White colour Engineering Grade Reflective band of 125 mm width all around. Note: - The specifications given in this BOQ item are not complete. In addition the items shall comply with the regulations and Tender Technical Specifications. After completion of the entire work, all the items will be the property of the contractor and he is also responsible for shifting all such release materials away from the site. (vii) Deployment of adequate manpower for 8hrs shift for day and night management of traffic at intersection, roadway influenced by contractor and traffic diversions at various levels. (a) In-charge (minimum 1) (Total of 2070 shifts) (b) Supervisor (minimum 4) (Total of 6030 shifts) (c) Traffic Guards				



SCHEDULE-A- Construction of Stations - General Works					
Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
	Note-1: The deployment to be done with prior approval of NMRC and Traffic Police. The personnel at (a), (b) & (c) above should be familiar with traffic rules and regulations the traffic signals and road delineators shall be placed as per approved plan and shall be prepared as per relevant code and Nagpur Traffic police guidelines. The payment of such item would be made on per running meter basis of the completed length. Note-2: The stage payment for the item is as follows: (i) Submission and approval of the Traffic Management plan form Traffic Police, local authority, NMRC and deployment of the traffic marshal and traffic signage's etc, along the stretch.- 10% of the accepted rate For eg: If initially a stretch of 5 Km is taken up for construction the payment to be made will be = 5000 x Accepted rate x 10/100. (ii) Completion of the Piling work and Pile cap work- 30% of the accepted rate (iii) Completion of Pier and pier cap work- 30% of the accepted rate (iv) Completion of Launching of U Girder- 10% of the accepted rate (v) Completion of entire work and restoring the Traffic to the				
	SUB-TOTAL OF G3		-		-
G4	ROAD WORKS		-		-
	Providing & construction of flexible pavement consist of 200mm thick granular sub-base (As per Cl.401), 225mm thick WMM (As per Cl.406), 50mm BM (As per Cl.504); 100mm thick Dense Bituminous Macadam (As per Cl.507) and 50mm thick Bituminous Concrete As per Cl.509 of MoRT&H Specification respectively, duly excavating the ground to the required depth, preparation of subgrade by filling with contractor's good quality own earth, levelling, compaction etc. as indicated in the tender drawing including matching the top BC layer with the existing Bituminous surface of advecene lane etc. complete. Item also includes providing and laying prime coat with bituminous emulsion @ 6.0-9.0 kg/10 sqm over WMM surface (As per Cl.502) and tack coat for BM,DBM and BC (As per Cl. 503 of MoRT&H Specification). Rate shall also include the lane marking of road and				
1	Providing and laying Granular Sub-base of 200mm thickness complete as per MoRT&H Spec. Cl 401. (DSR Ref Cl.16.78.1)	Cum	5,123.25	1,740.23	89,15,607.73
2	Providing and laying Wet Mix Macadam base of 225mm thickness on prepared surface complete as per MoRT&H Spec. Cl.406. (DSR Ref Cl.16.79)	Cum	5,166.28	1,490.23	76,98,919.61
3	Providing bituminous primer coat over granular surface with bitumen emulsion complete as per MoRT&H Spec. Cl. 502 @ 6.0 to 9.0 kg/10 sq.m.	Sqm	52.58	-	-
4	Providing tack coat with bituminous emulsion all complete as per MoRT&H Spec. Cl 503				
	(i) On granular surface treated with primer and on hungry bituminous surface @2.5 to 3.0 kg/10 sq.m.	Sqm	22.70	4,040.00	91,708.00
	(ii) On Bituminous surface @ 2.0 to 2.5 Kg/10 sq.m.	Sqm	20.31	4,040.00	82,052.40
5	Providing & laying Bituminous Macadam course of 50mm thickness on prepared surface complete as per MoRTH Spec. Cl 504 (DSR Ref Cl.16.55.2)	Cum	17,125.30	293.00	50,17,712.90
6	Providing & laying Dense Bituminous Macadam course of 100mm thickness on prepared surface complete as per MoRTH Spec. Cl 507, (DSR Ref Cl.16.54.2)	Cum	20,433.28	-	-
7	Providing & laying Bituminous Concrete course of 50mm thickness on prepared surface complete as per MoRT&H Spec, Cl 509 (DSR Ref Cl.16.57.5)	Cum	23,232.13	171.60	39,86,633.51
8	Constuction of subgrade and shoulders satisfying the requirements of minimum soaked CBR value as indicated in the specification with approved material with all leads and lifts all complete as per Tech. Spec.	Sqm	155.35	-	-
9	Bringing approved quality suitable good earth from outside for general filling of land, spreading the same in interspersed layers, and compacting as per specifications such that the compacted layer thickness is limited to 150mm. Rate to include, but not be limited to-all materials, labour, tools, equipments and incidentals as necessary to complete the work as per specifications	cum	1,079.15	167.85	1,81,135.33
	SUB-TOTAL OF G4				2,59,73,769.48
	Grand Total of Schedule -A				
	Net Amount Schedule A				3,46,88,443.57



Name of Work : Range Hill Station & other balance works of other stations of Pune
Metro Rail Project

SCHEDULE -C

Structural Works

Item	Description	Amount in INR
1	Sub-Total - Foundation	1,62,71,368.44
2	Sub-Total - Concrete Works	5,04,85,051.44
3	Sub-Total - Reinforcement and Prestressing Steel	6,25,32,005.47
4	Sub-Total - Structural Steel	17,38,93,825.46
5	Sub-Total - Miscellaneous Works	5,47,40,336.58
6	Sub-Total - Earth Fill	4,41,470.25
	GRAND TOTAL OF SCHEDULE-C	35,83,64,057.63



**Name of Work : Range Hill Station & other balance works of other stations
of Pune Metro Rail Project**

Schedule-C

Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
T01	FOUNDATION				
1.4	Providing and laying M15/20 grade cement concrete for 100mm thick PCC below pile cap/open foundation extending 100mm all round beyond pile cap/open stepped foundation etc. Rate shall include preparing surface to receive PCC, shuttering and the cost of required dosage of admixture in concrete for obtaining required workability as per specifications and approval of Engineer.	Cu. M	8,026.42	1,141.69	91,63,683.45
1.5	Providing and laying M35/20 grade reinforced cement concrete for pile cap (part of the foundation) including excavation through existing ground and water bound macadam road/bituminous road/cement concrete road of all thicknesses, soft and stiff clays including dismantling other structures, dead utilities etc. including dewatering, pumping and bailing out water. This item also includes cost involved in curing, required dosage of admixture in concrete for obtaining required workability as per specifications & approval of Engineer, providing shoring on all sides of excavated ground or road, all formwork and backfilling with suitable material in foundation in layers including watering, compacting with a vibratory plate compactor and loading, leading and disposal of surplus excavated material using covered trucks with all leads and lifts to designated dumping site of the city authorities with the approval of concerned authority and with the consent of the Engineer. Reinforcement shall be paid separately. Measurement shall be considered only the total volume of pile cap concrete (excluding PCC below pile cap)	Cu. M			
	(i) + backfilling with coarse sand	Cu.M.	14,268.12	66.82	9,53,395.78
	(ii) extra over (i) above for backfilling with excavated material	Cu.M.			
1.8	Providing M35/20 concrete (cement as per technical specification) for open foundation, basement slab, ancillary building foundation slab, retaining wall bottom slab including excavation through existing ground and water bound macadam road/bituminous road/cement concrete road of all thicknesses, soft and stiff clays including dismantling other structures, dead utilities etc. including dewatering, pumping and bailing out water. This item also includes cost involved in curing, required dosage of admixture in concrete for obtaining required workability as per specifications & approval of Engineer, providing shoring on all sides of excavated ground or road, all formwork and backfilling with suitable material in foundation in layers including watering, compacting with a vibratory plate compactor and loading, leading and disposal of surplus excavated material using covered trucks with all leads and lifts to designated dumping site of the city authorities with the approval of concerned authority and with the consent of the Engineer. Reinforcement shall be paid separately.				
	(i) + backfilling with coarse sand	Cu.M.	16,187.83	380.18	61,54,289.21
	Sub-Total - Foundation				1,62,71,368.44
T02	IN-SITU / PRECAST CONCRETE WORK				
2.2	IN-SITU Providing M 40/20 concrete (cement as per technical specification) for structural elements at all levels like slabs, beams, shafts, walls, columns, pits etc., including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer. Rate shall include using of steel material for shuttering with suitable pads required for architectural finishes & steel props including providing grooves, chamfers, moulding, cutout etc. with suitable arrangement in the formwork (Doka or equivalent), placing in proper position all types of inserts (contractor's or those provided by others), shear connectors etc. complete as per drawings, specifications and as directed by the Engineer. The rate shall also include construction joints as per specification and providing approved wire mesh/weld mesh at such location as approved by Engineer or as shown in drawings.	Cu. M	12,856.13	2,326.73	2,99,12,743.35
	(a) Providing M35/20 instead of M40/20 covered under item 2.2 above.	Cu. M	(679.72)	1,461.73	1,77,98,623.79
	(b) Providing M30/20 instead of M40/20 covered under item 2.2 above.	Cu. M	(1,001.06)		



Schedule-C					
Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
2.3	Providing M45/20 concrete (cement as per technical specification) for providing, casting, pre-stressing and curing of Normal / Cantilever Pier arms (integral to pier) supporting superstructure at all levels, in-situ connection with pier. The item includes centering, steel shuttering, scaffolding and all related operations as required to complete the work specified in drawings. (the cost shall be inclusive of the curing arrangements as required, all handling, non-shrink cement mortar, non-shrink concrete for in-situ connection with pier, temporary support etc. complete). Reinforcement, anchorages and sheathing shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer.	Cu. M	16,840.07		
2.4	Providing M50/20 concrete (cement as per technical specification) for casting, pre-stressing and curing precast full I-girder/T-girder/TT-girder spans or any other shapes of all simply supported spans in the casting yard including provision of shear connector for dec slab secondary pour concrete (rail plinths), additional bars for earthing, bars/strands/hooks for lifting of I-Girder, cutting of bars/strands/hooks after transportation and sealing of lifting recess as specified in drawings, lifting the full spans from the mould and shifting the same to the stacking yard. (Note : the cost shall be inclusive of the cost of casting yard, gantry, moulds, providing cutouts where specified, beds for pre-tensioning and anchoring devices, curing arrangements as required, steam curing arrangement, all handling etc. complete). Reinforcement, strands & debonding tubes shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer.	Cu. M	18,161.28	60.00	10,89,676.80
2.5	Providing M 45/20 concrete (cement as per technical specification) for precast Superstructure slabs / beams including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer.	Cu. M	16,840.08	100.00	16,84,007.50
Sub-Total - IN-SITU / PRECAST CONCRETE WORK					5,04,85,051.44
T03	REINFORCEMENT AND PRESTRESSING STEEL				
3.1	Providing TMT reinforcement steel of Fe-500D grade, from approved supplier, handling, straightening, cutting, bending, tying, lap welding, placing in position including binding wire in diamond form at each reinforcement junction in all structural concrete at all heights and depths with all leads complete as per specifications and as directed including welding involved towards stray current protection effects as per the system approved by Engineer.	MT	1,02,152.61	612.14	6,25,32,005.47
	Note:				
	(i) No extra payment will be made for lap joint welding in pile reinforcement.				
	(ii) For other structural members, lap joints are permitted for bar diameter ≤ 25 mm as directed by Engineer. However no extra payment shall be made for the lap the cost of which is deemed to be included in the rates.				
	(iii) The cost quoted should cover all welding and providing mechanical couplers, etc., complete.				
	(iv) The cost quoted should cover coating on reinforcement bar as per technical specification.				
	Sub Total - Reinforcement Steel:				6,25,32,005.47
T04	STRUCTURAL STEEL - PEB / AT SITE as required				
4.1	Providing, fabricating to require profile and shape, transporting, erecting and fixing in position structural steel work conforming to I.S. 2062 Grade B' and IS-4923 for YST-310 including procurement of all raw steel materials, bolts, nuts & washer incl. sand blasting (as per requirement) its testing, allowance for all types of wastage's, straightening, cutting, bending of sections wherever specified, welding, full strength butt welding (shop or field) wherever specified, drilling holesbolting, provision of necessary tools, testing etc. The rate shall also include required surface preparation for application of primes and procurement and application of all coats of shop and site primers and paints as specified. The rate shall also includes preparation of all complete detailed fabrication drawings based on design drawings, required for all permanent and temporary structures and their approval from Engineer prior to execution. The rate shall also include provision and installation of base plate anchor bolts (measured in tonnes) etc as per drawings and specifications. Any temporary support, staging braces, strutting, tying or anchor bolts, black bolts, fasteners, welding required to withstand the stresses of erection and carrying of plant and equipment are to be included in the rate. it includes all type structural work including FOB. (All labour, materials tools and plants consumables such as welding rods etc. by contractor) Note: 1. This includes the cost towards testing (such as D.P. Test, Radiography	MT	1,71,967.78		



Schedule-C					
Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
4.1 (i)	Payment ages: 4% of Stage Payment of Item On Procurement & testing of steel quantities or receipt in fabrication work-shop against documentary evidence of purchase from approved supplier subject to a maximum of quantities indicated in approved fabrication drawing also as indicated schedule. This stage payment is subject to submission of Indemnity bond (in Maha-Metro approved format), Test certificates and Invoice of the material supplied.	MT	77,385.51	1,011.20	7,82,52,223.92
4.1 (ii)	25% of Stage Payment of Item On completion of fabrication of steel work quantities & testing of fabricated members including painting per specification and its approval by Engineer in Charge.	MT	42,991.95	1,011.200	4,34,73,459.84
4.1 (iii)	10% of Stage Payment of Item On Transportation and receipt of fabricated material in good condition site, approval of Engineer in charge regarding physical receipt of fabricated materials in good condition	MT	17,196.78	1,011.200	1,73,89,383.94
4.1 (iv)	20% of Stage Payment of Item On Final Erection	MT	34,393.55	1,011.200	3,47,78,757.76
	Sub-Total STRUCTURAL STEEL - PEB / AT SITE as required		-		17,38,93,825.46
T05	MISCELLANEOUS ITEMS		-		-
5.1	Expansion Joints (Strip seal joint)		-		-
	Providing and installing in position approved building expansion joint at floor level between platform level slab, concourse level slab or all location as shown in execution drawings or at locations approved by Engineer consisting of aluminium extrusions, anti-skid serrated top plate (Straight/Curved) with vapour barrier, sealant etc. as per details and specifications or as approved by Engineer. Entire installation is to be carried out strictly in the presence of manufacturer's representative at all times. No extra payment will be made for providing thermal seal at expansion joint between columns or beams at locations shown in drawing at the time of construction of RCC elements.		-		-
	(i) Expansion /Contraction = +40mm/-40mm Vertical seismic movement = +10mm/-10mm	RM	10,828.92	767.15	83,07,405.98
	(ii) Expansion /Contraction = +25mm/-25mm Vertical seismic movement = +15mm/-15mm	RM	9,443.20	70.00	6,61,024.00
5.4	Installing and fixing in position holding down bolts of various sizes and lengths, as per drawings and instructions, including making of pockets in foundations, column heads, beams etc. Providing, fabricating to required profile and shape, transporting, erecting and fixing in position MS members made of built-up sections/rolled or hollow structural steel sections to be used as fixtures/supports/hangers etc for system/roofing contractors at any location or as directed by Engineer in charge. Providing, fabricating, installing and fixing in position any additional structural connections for signages, gutters, or required by the system contractors using standard plate sections welded & built up section, tubes, square, rectangular pipe section, rolled sections such as angles, channels etc. material as per approved vendor list.	MT	1,50,906.04	144.30	2,17,75,741.57
5.6	Supplying, pouring and packing non-shrink grout as per manufacturer's specifications under base plates of columns, trusses etc. complete as per drawings and specifications, including cost of packing plates, (per square of base plates shall be measured for payment).	Cu. M	83,322.36	38.75	32,28,741.45
5.7	Providing and fixing 8mm thick multi-wall clear Polycarbonate sheet with specially designed powder coated AL ALCOX system, EPDM rubber gasket, GE silicon sealant cold forged etc all complete as per the direction of engineer-in-charge	Sq.M	5,680.25	1,200.00	68,16,300.00
5.8	Supply and installation of roofing with colour coated, Galvalume substrate high tensile cold rolled steel panels corrugated to approved shape as per ASTM A446 (Grade D) / A653 (Grade 50), coating class ASTM A792- AZ150 (minimum 150 gram/sqm Zinc-aluminium alloy coating mass for both sides), yield strength 275Mpa, thickness of bare metal=24gauge, total coated thickness -0.68 mm thickness of bare metal=0.5mm, approximate mass of completed roofing shall be 4.12 kg/sqm). The painting shall be backed enamel polyester or silicon modified polyester or PVF2 (KYNAR® 500) with a film thickness of 1.0mil. The reverse side shall be white with 0.5mil film thickness. The sheet fixative shall be of fixed Snap-On seam roof/wall covering system that consists of structurally strong high-ribbed panels with wide-fluted pans for efficient water shedding and fixed by means of concealed clips. All the ribs should be clipped on and interlocked. No penetration should be done for its fixation to the roof or wall framing. Rate shall be including providing ridge pieces, horizontal/vertical flashing) at all heights etc., all complete complying specifications and as directed by the engineer in charge.	Sq.M	2,348.55	-	-



Schedule-C					
Item	Description	Unit	Rate with 18% GST	BOQ	
				Qty	Amount
	(i) Part rate 70% for material procurement This stage payment is subject to submission of Indemnity bond (in Maha-Metro approved format), Test certificates and Invoice of the material supplied.	Sq.M	1,643.99	5,646.50	92,82,761.30
	(ii) Part rate 20% for material Fixing	Sq.M	469.71	5,646.500	26,52,217.52
	(iii) Part rate 10% for handover	Sq.M	234.86	5,646.500	13,26,108.76
5.10	Supplying, transportation, lifting and fixing in position, true to line and level elastomeric bearings conforming to IRC:83 (Part II), section IX complete with all accessories as per drawing and specification below prefabricated steel girders of FOBs and precast concrete beams including testing of all bearings to the satisfaction of Engineer. Entire installation is to be carried strictly in the presence of manufacturer's representative at all times.	Cu.cm	1.50	4,60,024.00	6,90,036.00
	Sub Total - Miscellaneous Work:		-		5,47,40,336.58
T06	EARTH FILL				
1	Bringing approved quality suitable good earth from outside for general filling of land, spreading the same in interspersed layers, and compacting as per specifications such that the compacted layer thickness is limited to 150mm. Rate to include, but not be limited to-all materials, labour, tools, equipments and incidentals as necessary to complete the work as per specifications	Cum	436.02	1,012.50	4,41,470.25
	Sub Total -Earth Fill				4,41,470.25
	Grand Total of Schedule -C				35,83,64,057.63



**Name of Work : Range Hill Station & other balance works of
other stations of Pune Metro Rail Project**

SCHEDULE -D

Architectural & Site Development Works NDSR ITEMS

Item	Description	Amount in INR
1	MASONRY WORKS	1,04,98,877.03
2	STONE AND GRANITE WORKS	4,27,32,198.81
3	TILE WORKS	31,44,568.83
4	ACCESS RAISED FLOOR	13,58,165.98
5	WOOD WORKS AND IRON MONGREY	4,01,861.73
6	STAINLESS STEEL WORKS	2,58,28,479.56
7	ALUMINUM WORKS	5,88,76,407.16
8	GLASS WORKS	21,70,818.25
9	FALSE CEILING WORKS	62,63,603.15
10	PAINTING WORKS	5,48,647.91
11	MILD STEEL WORKS	3,07,379.88
12	FIRE DOOR	22,26,445.65
13	CONCRETE WORK	4,37,926.69
14	LANDSCAPING AND EXTERNAL WORKS	-
15	WATER PROOFING WORKS	14,79,014.28
16	SPECIAL ITEMS	1,77,55,871.60
	GRAND TOTAL OF SCHEDULE-D	17,40,30,266.49



Name of Work : Range Hill Station & other balance works of other stations of Pune Metro Rail Project					
SCHEDULE-D Construction of Stations - Architectural and Site Development Works NDSR ITEMS					
Sl. No.	Item	Description	Unit	Rate with 18% GST	Total BOQ
					Qty Amount
I		MASONRY WORKS			
A		HOLLOW BLOCKS			
B		LIGHT WEIGHT BLOCKS			
3	NDSR	Providing and constructing wall with light weight concrete block masonry (Aerocor block or equivalent) size 600x200x200mm (i) stre 50 not less than 3N/Sqm with cement mortar 1:6 conforming to IS: 2185 (Part II) 1984. (Specifications for AAC) and IS: 6041, and IS: 6141 1972 (Part I to Part VI) including the cost of materials, labour, scaffolding, curing etc., complete as per the manufacturer's specifications for rectangular, curved or circular masonry works in pier or around the concrete columns/ walls etc., all as per specifications, drawings and as directed etc., complete at any height including (i) fixed and lift. For 200mm thick wall.	Cum	9,626.18	1,039.90 1,00,10,261.05
C		STONE MASONRY			
E		PLASTERING WORKS			
8	NDSR	Cutting chases for conduiting in walls as per direction and marking by the E&M site in charge to the required depth with a machine cutter & covering the same with galvanized wire mesh after installation of conduit by E&M and making ready for plastering works.	Rm	149.88	
9	NDSR	20 mm water proofing cement plaster of mix 1:4 (1 cement : 4 coarse sand) in two coats for lining the drains, mixed with approved water proofing admixture for sunken areas of toilets, balconies or wherever directed by engineer in charge, including the neat cement punning over the base surface.	Sqm	483.59	851.00 4,11,534.48
10	NDSR	Providing 12 mm thick cement plaster in single coat with cement mortar 1:6 to brick / Aerocor masonry/ concrete works including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of material, labour, curing complete as per specification for all heights.	Sqm	139.57	227.00 77,081.50
		TOTAL MASONRY WORKS			1,04,98,877.03
2.0		STONE AND GRANITE WORKS			
		Note: All granite slabs shall be selected as per approved sample from Tamil Nadu / Karnataka / Rajasthan (Jhalore) of selected quality, uniform in colour, free from cracks, fissures and flakes with straight edges and perfect corners.			
A		GRANITE STONE			
1	NDSR	Providing and fixing flamed finish Sadarhalli grey granite stone (bull nosed) of size 1200x600x60 mm at platform edge level using 5mm thick approved thick bed adhesive as per specification over prepared base on 20mm (average) thick base of cement mortar 1:4 (1 cement : 4 total aggregate - sand and 10mm single sized aggregate) using 43 grade cement, water reducing admixture as per ISO 9103:1999 and jointing with white cement with matching colour pigment all complete in levelling course laid to proper slopes over screed base including, base preparation including movement joint in screed as per specification with 10mm thick compressible filler to edge of screed with two parts polysulphide sealant to top edge as per approved drawing and directions of engineer-in-charge.	Sqm	7,572.38	170.00 12,87,303.93
1.1	NDSR	Extra for Red/Raw silk/Tan brown/Jet black granite	Sqm	1,405.11	
2.2	2.2	Providing and laying 30mm thick prepolished Sadarhalli Grey/ Cheema Pink/ Jhalore Beige granite slab of sizes up to and including 1200x600mm on floor using 5mm thick approved thick bed adhesive as per specification over prepared base on 20mm (average) thick base of cement mortar 1:4 (1 Cement : 4 total aggregates - coarse sand and 10mm single sized aggregates) using 43 grade cement, water reducing admixture as per ISO 9103:1999 and jointing with white cement with matching colour pigment all complete (Colour of granite as approved by Engineer) in levelling course laid to proper slopes over screed base including base preparation, movement joint in screed as per specification with 10mm thick compressible filler to edge of screed/ blockwork junction with two parts polysulphide sealant to top edge, drainage gullies as per approved section, curing, testing etc. as per specifications and relevant drawings.			
2.3	2.3	Extra for Red/Raw silk/Jet Black/Tan Brown/Kashmir Yellow/ Ikon Brown/ Multi- Red/ Blue Pearl granite			
		(i) 1200x600mm sized granite slab	Sqm	5,442.47	4,609.79 2,50,88,623.20
3	NDSR	Providing and laying 30mm thick FLAMED Sadarhalli Grey Granite Stone flooring in treads and landings (including bull nosing, rounding the nose and making groove) of steps of approved colour, size and pattern, (sample of granite stone shall be approved by Engineer-in-charge) over 20mm (average) thick base of cement mortar 1:4 (1 cement : 4 core sand) laid and jointed with neat cement slurry mixed with pigment to match the shade of granite stone complete as per specifications and architectural drawings. Allow for cutting & finishing for handrails fixing as per design.	Sqm	5,724.65	581.32 33,27,855.93
3.1		Extra for Red/Raw silk/Tan Brown/Jet Black granite	Sqm	468.37	178.20 83,462.67
4	NDSR	Providing and laying 20mm thick mirror polished Granite Stone in risers of steps of approved colour, size and pattern, (sample of granite stone shall be approved by Engineer-in-charge) over 12 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand) and jointed with neat cement slurry mixed with pigment to match the shade of granite stone complete as per specifications and relevant drawings.	Sqm	4,844.12	308.00 14,91,989.35
4.1		Extra for Red/ Raw Silk/ Tan Brown/ Jet Black granite	Sqm	468.37	308.00 1,44,256.48
5	5 (NDSR)	Providing and laying 30mm thick mirror polished Sadarhalli Grey/Cheema pink/Jhalore Beige granite stone work of up to and including sizes of 1200mmx600mm of approved colour/pattern with 4mm groove all around at all levels for wall linings/columns/skirting (veneer work) by mechanical arrangement with SS cramps/brackets, anchor bolts, 5mm vertical SS pins of approved make and inserts as per drawings and specifications. The cost of making necessary grooves all around stone pieces, chamfering of corner edges and polishing are included. Allow for cutting of holes and box outs for services etc...	Sqm	5,841.75	1,676.00 97,90,769.71
		(i) 70% After Material procurement This stage payment is subject to submission of indemnity bond (in Maha-Metro approved format), Test certificates and Invoice of the material supplied.			
		(ii) 20% After Material Fixing			
		(iii) 10% After Hand over			
5.1		Extra for Red/ Raw Silk/ Tan Brown/ Jet Black granite	Sqm	468.37	433.90 2,03,223.65
7	NDSR	Providing and laying 40mm polished Red/Raw silk/Black/Tan brown/Blue pearl granite slabs for trench cover with 75mm dia holes @ 75mm c/c spacing complete	Sqm	6,909.64	
9	NDSR	Providing and installing counters of MS (with primer and 2 coats of enamel paint) carcass in TOM, EFO, SCR etc. with 30mm thick polished & moulded Jet Black Granite top with all cutouts/ openings including providing and fixing over 19mm thick commercial board & 19 x 3 mm teak wood lipping all complete of approved quality as per specifications and relevant drawings (Plan area shall be considered for measurement)	Sqm	9,404.87	30.00 2,82,146.22
11	NDSR	Providing and laying polished granite slab of approved colour, origin and shade, 18mm thick laid in skirting on 20mm (average) thick cement mortar 1:4 (1 cement: 4 coarse sand), sprinkled with white cement and jointed with white cement slurry mixed with pigment to match the shade of the slabs including rubbing and polishing complete. Rates include coordination with other agencies for cutouts, holes and finishing of the same.			
11.1		600mm x 100mm sized polished granite slabs	Sqm	3,926.11	263.00 10,32,567.68
		TOTAL OF GRANITE AND STONE WORKS			4,27,32,198.81
3.0		TILE WORKS			



SCHEDULE 40 - Construction of Stations - Architectural and Site Development Works NDSR/115A15						
Item	Description	Unit	Rate with 18% GST	Total BOQ		
				Qty	Amount	
A	VITRIFIED TILES					
1	Providing and laying multi finish vitrified tile of 1st quality in all colors as per detail of sample at all levels in public, traffic of horse sheds and toilet floor and skirting over 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement matching pigments. All complete as per relevant drawings and specifications laid over 10mm lean concrete as per relevant architectural drawing. Rates include 5% abrasion for cubicle, toilet and finishing of the same size 600x600x10 mm thick.	Sqm	1,762.25	300.00	5,28,675.00	5,28,675.00
2	Providing and laying 1st quality vitrified wall tiles of approved make, shade, colour and finish in all cubicles, shades, size in skirting, wall cladding, border tiles and shades over 20/12mm thick bed of cement mortar 1:4 (1 cement : 3 coarse sand) and pointing with approved grouting material with pointing in white cement mixed with pigment of matching shade complete.	Sqm	1,756.39	337.50	3,10,780.90	5,92,780.90
B	CERAMIC TILES					
C	TACTILE FLOORING					
9	Providing and laying 12mm (minimum) thick with 3mm (minimum) high projection on surface yellow coloured directional vitrified porcelain tactile tile of pebbles or equivalent as per specification laid on floor with laterite 1:1 crete filler powder mixed with laterite 73 latex admix and applied to a minimum thickness of 4mm (The mixing ratio shall be as follows: 20kg bag (laterite 1115.5 laterite 73) Spacer of 10mm dia be used between the tiles and joints filled using laterite epoxy SP 100 epoxy grout in Inca Gold colour. The joint depth shall be 6mm. Latitecrete products shall be manufactured by laterite India Pvt. Ltd/Latitecrete International Inc. over 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand) in levelling course laid to proper slope over screed base including base preparation including movement joint in screed as per specification with 10mm thick compressible filler (edge of screed with two parts polysulphide sealant) to top edge as per approved drawings and directions of engineer-in-charge.	Sqm				
9.1	300/300 hazard warning and directional tactile tiles as per approved drawings.	Each	339.57	4,920.00	16,70,665.07	16,70,665.07
	TOTAL OF TILES WORKS					31,44,568.83
4.0	ACCESS RAISED FLOOR					
1	Providing and fixing access raised floor of light grade of minimum 15 Kt/m ² UDL panels manufactured from pressed formed corrosion resistant galvanized steel with total overlap of one piece top, sides and bottom flange encapsulating monolithic homogeneous totally premixed fiber reinforced calcium silicate material with balanced density over panel, to cater in the size 600 x 600 x 41mm. The panel has 10kg placed on the pedestal made from a solid steel construction, galvanized mild steel consisting of stringers, an anti vibrational head cap, 10kg cruciform supports and four corner brackets. Access floor system shall be tested as per the steel base plate. The pedestal cap shall have an electrical conductor plate for dissipation of static electricity. The steel base plate of the pedestal shall be fixed on the sub-floor with Epoxy pedestal adhesive and/or mechanical fixing with fasteners (8mm x 75mm). The Access floor should be able to take a point load of minimum 2.5 Kt over 25 mm sq. and UDL of minimum 15 Kt/sq. meter. The panel shall be finished with high abrasion, anti static HPL.	Sqm	8,332.31	163.00	1,35,165.98	1,35,165.98
1.1	Up to 450 mm high cavity floor	Sqm				
	TOTAL OF ACCESS RAISED FLOOR WORKS					1,35,165.98
5	WOOD WORKS AND IRON MONGREY					
5	Providing & fixing Toilet Cubicle (of following standard dimension which includes 900mm door size width) made of heat, bacteria, water, chemical, scratch, impact and anti bacterial resistant 12mm thick solid compact laminate panels tested in approved laboratory. Finish of the compact laminate should be Suede, Raw silk model includes doors, pilasters & intermediate panels finished with approved texture/shade as per the detail drawings & as per IS 2046 (Indian standard) and as per fire retardant BS-476/77 standard. This also includes providing and fixing in position necessary hardware made out of stainless steel (Grade 304) as per manufacturers specifications & Architects instructions like (1) Door knob (2) Gravity hinges (3) Thumb turn lockset with occupancy indicators (4) Coat hooks with Door stopper (5) J channel (6) Adjustable foot/pedestal (7) Top rail with corner connector (8) Rubber nose deafening tape (9) Screws & wall plugs. All screws will of 304 Grade in stainless steel with satin finish. All pilasters are supported by stainless steel bottom cladding. The base of the stainless steel bottom cladding will be anchored to the floor with a clearance height up to 150mm, the top fitting should consist of SS round top rail which will get fixed with pilasters, with SS panel tube holder, SS corner bend (connected with top rail) will be used on the corner of cubicle in absence of brick wall, SS wall fixing is used only on the wall which will hold the SS top rail.	Nos	50,232.72	8.00	4,01,861.73	4,01,861.73
5.1	Toilet Cubicle with standard dimension of 2025mm height x 1000mm width x 1550mm Depth, which includes up to 900mm door size width)	Nos				
	TOTAL OF WOOD AND IRON MONGREY WORKS					4,01,861.73
6.0	STAINLESS STEEL WORKS					
A	STAINLESS STEEL RAILING					
1	Supplying, fabricating, multi finished, erection of wall mounted handrail as per design comprising of 50mm dia Stainless steel Grade 304 including threading on both sides to receive grub screw on one side and rail holding barrel on the other side, 25mm dia rod upright threaded to receive 50mm dia handrail, 80mm OD 6mm thick SS plate, 50mm OD-3.15mm thick pipe fixing the same by cutting 49mm dia hole in granite/vitrified tile wall cladding in required position including angular assembly at every bend and fixing handrail in concrete/block with SS fasteners complete in all respect and making good the wall as per Specifications and	Kg	790.38	3,500.00	27,66,325.63	27,66,325.63
2	Supplying, fabricating, MATTE FINISH, erection of 1100mm high SS hand railing as per design comprising of 50mm dia, 3.15mm thick, Stainless steel Grade 304 with balustrades as per drawing, SS base plate, pipe adjuster M16x200mm SS fasteners for fixing railing in floor by cutting hole of required dia in floors/landings/staircase complete in all respect and making good the floors as per Specifications and Architectural Drawings.	Kg	848.93	21,787.00	1,84,95,544.54	1,84,95,544.54
B	STAINLESS STEEL GLASS RAILING					
5	Supplying, fabricating, MATTE FINISH, erection of required height (900 to 1100) mm high SS hand railing system, System comprising of 38mm Dia & 1.6mm thick Top-Rail Stainless Steel Grade 304 connected to 50 mm Dia 3.15mm thick Baluster through Stainless Steel Saddle Plate connector. And a Grab Rail of 38mm Dia connected to Baluster through a Stainless Steel Stem Key. Baluster fixed to slab with GI Baseplate & M16x200 mm Fastener. A SS cover plate would be provided above GI Base Plate. Infill of 1 No. 12mm thick toughened glass connected to baluster with Stainless Steel Twin-arm Spider Clamp.	Rm	7,868.62	580.00	45,63,799.19	45,63,799.19
C	STAINLESS STEEL CLADDING					
D	STAINLESS STEEL ARTICLES					
7	Fabricating and supply of stainless steel (conforming to grade SS 304 satin finish) four seater bench without backrest as per drawing	Kg	702.55	4.00	2,810.21	2,810.21
8	SS Trash bins as per design	Nos				
	TOTAL STAINLESS OF STEEL WORK					2,58,28,479.56
7.0	ALUMINUM WORKS					
A	ALUMINUM CLADDING					



SCHEDULE-D -Construction of Stations - Architectural and Site Development Works NDSR ITEMS					
Item	Description	Unit	Rate with 18% GST	Total BOO	
				Qty	Amount
1	<p>10.5.1 Providing and fixing Five Rated Aluminum Composite panels in all colours of approved brand for wall cladding at all heights and elevations including necessary aluminum composite panel consist of 3mm thermoplastic core of anti oxidant LDPE sandwiched between two skin of 0.5 mm thick alloy sheet making a total sheet thickness of 1 mm. The surface shall be finished with PDVF base coating on the inside and service coating on the reverse side shall be with a polyurethane paint. Coating shall conform to ECCA of AAMA. The system shall design to withstand wind pressure of 200 kg/sqm and shall be fixed to the masonry/RCC walls with necessary clamps, bracket and anchor fasteners.</p> <p>All Clamps and brackets shall be hot dip galvanized minimum 80 micron thick and confirmed to IS : 4759 - 1996. The extruded aluminum sections shall be anodized in approved colour with anodic coating minimum 20 microns. Extruded section shall be of 6063</p> <p>T5 or T6 alloy conforming to ASTM B 221. (Items include cost of aluminum frame, ACP Panels, Clamps 110mm size, weather sealant, gasket, foam, fixtures, scaffolding, all machineries and any other fastening strips, nuts, bolts, rivets, washers, etc. complete).</p>	Sqm	5,406.16	9,990.00	5,40,07,533.05
3	<p>NDSR Supply & fixing of Luxalon perforated horizontal and vertical panels by Hunter Douglas of 2 to 3 mm thick. The panel will consist of single skin of flat Aluminum alloy AA3005/3105. Panel width will be to a maximum of 900 mm and of variable lengths up to maximum of 5000 mm (Manufactured as per the project requirement). The perforation shall be customized (required). The panel will be coated on the exterior/exposed surface with Exterior Architectural Coating. The horizontal joints will have a recessed joint width of 20mm and will incorporate facilities for allowing adjustment of 1 mm. The panels will be secured to tailor made support system by means of a fixing side extrusion fixed to the panel, fixed appropriate centers to proprietary metal clamp per the proprietary HDI design.</p> <p>Things to be taken Care by Installer (Non-HDI): The panel needs to be fastened to a Suitable Aluminum substructure as per the requirement. Installer will erect the secondary and primary substructure within the tolerances of span/1000 of plumb line and level per support (non-Cumulative to a maximum of 2 mm).</p> <p>Aluminum alloy for substructure will comply with IS 8147, Anodic coating on Aluminum substructure (wherever applicable) and its specified alloy will comply with IS 1968-1996. The substructure will be fixed to the backing wall by means of Aluminum/MS brackets with wedge type/RAWL PLUG stainless steel anchor fastener/HILTI or equivalent chemical fastener. The brackets will allow for a</p>		10,304.15		
3.i	Material Procurement -70%		7,212.90	3,562.00	29,86,142.62
3.ii	Fixing - 20%		2,060.83	3,562.00	8,53,183.61
3.iii	Handover -10%		1,030.41	3,562.00	4,26,591.80
C	ALUMINIUM LOUVERS				
4	<p>NDSR Providing and fixing PVDF aluminum extruded single bank louvers with AMCA certification complete. The louvers should have hidden mullions and an insect screen and should be equivalent to C/S louver model RS-1605. All work to be complete with extruded aluminum sub frame extruded built up standard elliptical section conforming to IS 733 and IS 1285 fixed with raw plugs and stainless steel screws or with fixing clip or with expansion hold fasteners including necessary filling up of gaps at junctions at top bottom and sides with required PVC/neoprene felt complete in all respect. Aluminum sections shall be smooth rust free, straight as per architectural drawings and the direction of Engineer-in-charge etc. All structural steel support frame work shall be paid separately</p>	Sqm	4,131.02	110.00	4,54,412.42
D	ALUMINIUM DOORS				
6	<p>NDSR Providing and fixing Aluminum Door with frame of approved make with door frame / chowkhat of section 101.6 x 44.45 x 3.16 mm (2.508 kg/R.mt) and shutters with stiles and rails of aluminum sections 85 x 44.5 x 3 mm (2.1 kg / R.mt) with bottom panel made of 12 mm thick prelaminated Hovo pan or equivalent flat pressed three layered prelaminated particle board exterior grade IS stamped IS:12823 grade, type-II, one side decorative and other balancing white and edges sealed with water resistant paint. Top panel with 6 mm thick clear glass. Both board and glass will be fixed with glazing clips and beadings / gaskets and necessary fittings all as per manufacturer's specifications and directions. EPDM rubber gasket and frame fixed in position with steel screws and rawl plugs. All visible steel screws shall be rust resistant and coloured as approved.</p> <p>All aluminum sections shall be as per drawing and conforming to grade 63400 WP alloy as per IS:733 and IS: 1285 and colour 65 microns powder coated finish complete as approved and directed by the Engineer. The door to be complete with all necessary accessories such as aluminum handles, tower bolts, locks, pivot / hinges etc. complete.</p>	Sqm	7,427.18	20.00	1,48,543.67
	TOTAL OF ALUMINIUM WORKS				5,88,76,407.16
8.0	GLASS WORKS				
1	<p>NDSR Providing and installing fixed glazed security wall assembly of stainless steel to ticket offices, Station Control Room, etc. with specified fixings and finish using 2 sheets of 6mm thick toughened glass with nominal gap silicone sealant joints. Glass shall be clear, toughened and laminated with 1.52mm thick polyvinyl butyral layer- all complete as per relevant architectural drawings and specification with cut out fit holes</p>	Sqm	10,304.15	81.00	8,34,636.14
2	<p>NDSR Providing and fixing of toughened laminated glass door in EFO (6mm + 1.52mm + 6mm) including stainless steel door handles, deadlock and Floor spring complete necessary cutting in granite flooring for housing of floor spring as / drawing</p>	Sqm	16,046.37	77.00	12,35,570.26
5	<p>NDSR Providing and fixing toilet mirror in 6 mm thick clear float glass with beveled and polished at edge, fixed on wall with 6mm thick hard board backing fixed to wooden cleats with 8mm dia 38mm long stainless steel stud complete.</p>	Sqm	4,024.47	25.00	1,00,611.86
	TOTAL OF GLASS WORKS				21,70,818.25
9.0	FALSE CEILING WORKS				
A	CALCIUM SILICATE BOARD CEILING				
1	<p>NDSR Providing and installing suspended ceiling systems / vertical fascia as per controlled sample for concourse, 12mm thick Calcium Silicate Board panels with paint as per specification including supply of suspension system of galvanized steel as per manufacturer's recommendation, top fixing of SS expanding anchor bolts, rigid hangers, accessories inclusive of providing opening for electrical fixtures / fittings, fixed framing to support fixtures / fittings and providing secondary supporting system for cable tray and duct and all complete as per relevant drawings and the direction of Engineer-in-charge.</p>	Sqm	2,191.98	100.00	2,19,197.64
B	PERFORATED METAL PANEL CEILING				



SCHEDULE D - Construction of Stations Architectural and Site Development Works NDSR ITEMS						
Item		Description	U	Rate with 18% GST	Total BOQ	
					Qty	Amount
2	BR	Supply & Fixing of Luxalon torsion spring Tile Ceiling System by Hunter Douglas comprising of Tile of 600mm wide and 600mm long manufactured out of 0.5mm thick Galvalume steel perforated 3.5mm dia 2.15/4 holes/c. With 22" open area. The metal ceiling panels shall be downward accessible with a maximum of four (4) torsion springs per panel. The Tile will be manufactured in advanced CAD/CAM equipment that includes several stages of manufacturing process and special process of the roller sheet leveling to achieve flat panels. Torsion Spring panel with two side legs die formed and two end legs die formed and punched to receive torsion springs from two springs each end be used for secure engagement into Tee Grid main runners which are factory punched to receive torsion springs. Tiles will be square edged. The metal ending panels shall be downward accessible with a maximum of four (4) torsion springs per panel. The Tile shall be Polyester powder coated in white colour. Main Runners: 24mm deep, inverted "Tee" sections, 30mm long, with --- - Suspension Approved T Hanger wire strength pre-stretched galvanized steel 6mm Threaded Rod w Bracket Paint finish: panels w II lite treated in latest nano technology process and electro statically wider coated with automatic Caranatem and cured gas catalytic technology Fire Retardant the system w III meet Fire retardant standard of IS 4763: 6 & Part Acoustic Felt-on-woven felt of glass-reinforced fiber glued to the perforation for sound absorption NRC- 0.7 0.45	Sqm	5,152.02	455.00	23,44,191.69
C		ACOUSTIC INSULATION				
D		FIRE RATED CEILING AND BULKHEAD				
7	NDSR	FLAT METAL CEILING: Providing and installing suspended false ceiling/terms as per contract for Concourse and subway areas with hook n tiles and tiles, butt jointed, fully demountable 24mm thick pressed steel fill units and false ceiling type finished with 80 micron thick powder coated to specification K40/217A, top fixing of expanding anchor bolts, rigid hangers, concealed with trim inclusive of cutting for electrical fixtures/ fittings. VAC grills fixed framing to support fixtures/fittings and providing ordinary supporting system below cable tray and duct and all complete as shown in drawings and specifications nos K40/106	Sqm	3,540.87	1,045.00	37,00,213.82
		TOTAL OF FALSE CEILING WORKS				62,63,693.15
10.0		PAINTING WORKS				
1	NDSR	Providing and applying two coats of Uniflora's Rodon Spectrum Perla fine or Heritage Granula Surface Texture paint after applying responding roller coat as primer on RCC plastered surface as per approved sample in approved shade. The composition of the texture paint should comply to the following:- combined with quartz silica, mineral, aggregates, synthetic inorganic pigments, bactericidal particles and various other additives, giving the product water repellent properties. To be applied by brush or wool roller as a base coat, diluted with sufficient water and the final coat (Undiluted) to be applied by trowel and finished with acrylic trowel to maintain with or without, as per stipulations. The thickness of both coats should be 1.016mm. The repellency of the product shall be 86gm/m2. Test method IS: 5410 961 complete per manufacture's specifications and instructions by Engineer in Charge site. The rate shall include necessary scaffolding, labour and material complete.	Sqm	468.37	5,650.00	1,87,814.44



SCHEDULE D - Construction of Stations - Architectural and Site Development Works NDSR ITEMS						
Item		Description	Unit	Rate with 18% GST	Total BBO	
					Qty	Amount
2	NDSR	Finishing new surfaces at all levels with 3 coats of approved Acrylic Emulsion of required shade over a thinned coat of emulsion as recommended by manufacturer, including primer coat and 15mm thick plaster to be done by contractor in 2 coats (thickness excludes dubbing out) in 1:4 (1 cement : 4 coarse sand) render with wood float finish over blockwork / brickwork, including scaffolding at all heights, surface preparation, beads / stops, etc. all complete as	Sqm	393.44	4,471.00	65,703.67
4	NDSR	Providing and applying 3mm 1.5mm thick exterior Birla/JK or equivalent ready made putty in two coats over Brickwork/ Blockwork/ RCC surface of ceiling/beam/column etc. to prepare even and smooth surface including sand papering, grinding, scaffolding etc., complete as per direction of Engineer in Charge.	Sqm	131.15	4,471.00	21,901.81
6	NDSR	Providing and applying Acrylic Smooth exterior paint with two or more coats of approved colour and shade to give an even shade, including scaffolding at all heights. All as per manufacturer's specifications and as directed by the Engineer	Sqm	271.65	4,949.00	1,08,661.14
8	NDSR	Providing and applying Acrylic emulsion paint on new work with two or more coats of approved colour and shade to give an even shade including scaffolding at all heights.	Sqm	168.61	976.00	1,64,566.85
		TOTAL OF PAINTING WORKS		-	-	5,48,647.91
11.0		MILD STEEL WORKS		-	-	-
2	NDSR	Supplying and fixing automatic galvanized Industrial motorized rolling shutters (heavy duty) of approved make i.e. Indo Germa Ltd, Chennai or equivalent made of required sizes and shape with G.I guides control box drive unit and with all other accessories complete as per manufacturer's specifications.	Sqm	6,369.84	133.00	1,33,766.64
2.1		Extra for area exceeding 10sqm and up to 16.80 Sqm in area	Sqm	1,065.54	49.00	52,211.46
2.2		Extra for area exceeding 16.80 Sqm in area		-	-	-
4	NDSR	Providing and fixing M.S. steel hand railing as per the design and drawings and specifications to staircase approximately 1200 mm high comprising of 32 mm dia 10 Gauge MS hollow tube vertically fixed to every fourth step welded to 50 mm dia 10 gauge MS pipe on top for handrail and 20 mm dia MS pipe vertically in between welded to 2 Nos of 20 mm dia M.S. Pipe all as per the drawings, the vertical balusters are fixed in position with molten lead poured into 40 mm dia GI sleeve with 80 x 80 x 3mm GI Plate and embedded in RCC including necessary steel cover and completed as shown in the drawings or any other method of fixing as approved by the Engineer in charge like epoxy grout fixing etc., complete. All M.S. members will be painted with two coats of synthetic enamel paint of approved make and colour over one coat of primer all as per manufacturer's instructions and with the engineer's approval.	Rm	2,023.36	60.00	1,21,401.77
		TOTAL OF MILD STEEL WORKS		-	-	3,07,379.88
12.0		FIRE DOOR		-	-	-
1	NDSR	Fire Check doors (2.2m x 2.4m) design & supply of approved make fire rated door/fabricated and successfully tested at CBRI Roorkee in both direction satisfying two criteria (Stability and Integrity) conforming to BS:476 part II, IS3614 Part II as per schedule of requirement, complete with shutters, frames, hinges, conforming to the design intent. All fire doors must conform to the requirements of fire authority having jurisdiction and as per prototype tested by approved fire testing agency acceptable to fire authority having jurisdiction. Door shutter and frames to have all hardware preparations must be prepunctured at the factory for fixing of said hardware. Shutters & frames to be filled with suitable fillers, insulation to meet the required fire resistance criteria as specified, with all grouting, reinforcements, flushed lock seam joints including all seals, washers, linings etc. complete. All fire doors to be primed and painted with approved painting system as per tested prototype and to approved colour. Provision of mortice sash lock (ML 100A) with S.S. lever handles and door closers heavy duty (imported) LCN 1461 with standard arm on every leaf, stainless steel hinges as per approved shop drawing.				
1.1		60minutes (1 hour) fire rated metal door assembly	Sqm	11,151.90	49.00	5,46,442.88
1.2		120 minutes (2 hour) fire rated metal door assembly	Sqm	13,382.51	94.00	12,57,955.60
2	NDSR	Clear Vision panel of 200mm*300mm per leaf with fire rating	Sqm	4,012.76	12.00	48,153.10
3	NDSR	Heavy Duty Door closer	Sqm	3,802.30	14.00	53,232.20
4	NDSR	Eurofile Mortice lock 240 with double pin cylinder master arrangement and SS handles	Sqm	4,997.30	9.00	44,975.70
5	NDSR	Concealed SS finish tower bolts (300mm)	Each	1,081.93	16.00	17,310.94
6	NDSR	Magnum or equivalent make SS 4 ball bearing hinges.	Sqm	695.80	11.00	7,653.80
7	NDSR	SS handles Dorma or equivalent make for double leaf door	Sqm	4,562.77	11.00	50,190.47
8	NDSR	Dorma make panic bar for double leaf door or similar item or similar rate.	Sqm	17,563.89	5.00	87,819.45
9	NDSR	Installation charges	Sqm	1,357.97	83.00	1,12,711.51
		TOTAL OF FIRE DOOR WORKS		-	-	22,26,445.65
13.0		CONCRETE WORK		-	-	-
3	NDSR	Providing and applying anti dust sealer (epoxy coating) 1000µ thick epoxy floor coating along with necessary floor preparation by ASIAN PAINTS PPG make or equivalent with use of APCFLOR HFP 120 Two component, high solid, epoxy resin based floor primer @50 µ & then topcoat APCFLOR SL2 Self levelling coatings with excellent flow & levelling characteristics, conforms to the Global Migration Standards laid down in US-FDA: 21CFR 175-300 and also having mechanical properties such as compressive strength 51 mpa (ASTM C 579), Flexural strength 12 mpa (ASTM C 580) & Tensile Strength 8 mpa (ASTM C 307) on floor as per approved colour and shade. Floor condition shall be of Trimix and the moisture content of the concrete flooring should be less than 5%	Sqm	2,014.00	101.00	2,03,413.66
5	NDSR	Providing and laying 50mm thick cement concrete granolithic flooring 1:2:4 (1 cement : 2 coarse sand: 4 graded stone with 20mm nominal size stone aggregate) finished with Non-metallic Monolithic surface using hardening compound such as Nitoflor Hardtop Standard of Fosroc or approved equivalent to Concrete floor to develop proper bonding and to seal, harden, water-proof, improve abrasion, chemical resistance and to form a dust free surface as per manufacturer's specifications. Using power trowel including aluminum strips 40mm wide and 2mm thick in joints of cement concrete floor etc. complete.	Sqm	860.63	168.00	1,44,585.99
6	NDSR	Providing and fixing of Glass Reinforced Concrete(G.R.C) Jalli 40mm thick in approved size,patters,design,thickness and colour of M/S Unistone make or equivalent to be fixed on/between RCC/block work column or structural steel work with Dry fixing method with all appropriate steel frame work, stainless steel (SS-304) 'L' shaped clamps, dash fasteners and pins including anchoring,lifting,scaffolding etc. complete as per architectural drawing and manufacture specification The screens should be made from '53 grade' white portland cement manufactured by 'JK Cement' or equivalent, super plasticizers manufactured by 'BASF' or equivalent, polymers manufactured by 'BASF' or equivalent and UV resistant synthetic inorganic pigments should be used for pigmentation manufactured by 'BAYFERROX (Germany)' or equivalent. The material casting should take place in Synthetic rubber/FRP mould manufactured by Reckli or equivalent	sqm	2,810.22	32.00	89,927.04
		TOTAL OF CONCRETE WORKS		-	-	4,37,926.69



SCHEDULE D -Construction of Stations - Architectural and Site Development Works NDSR ITEMS						
BSR		Description	Unit	Rate with 18% GST	Total BOQ	
					Qty	Amount
14.0		LANDSCAPING AND EXTERNAL WORKS				
		TOTAL OF LANDSCAPING AND EXTERNAL WORKS				
15.0		WATER PROOFING WORKS				
1	NDSR	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 20mm thick with cement slurry mixed with water proofing compound conforming to IS: 2645 in recommended proportion with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:4 (1 cement : 4 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer in charge.	Sqm	1,405.11	750.00	10,53,829.55
		Providing and laying Brick bat water proofing treatment for terrace with the following including cleaning the RCC slab top surface :-				
2	NDSR	Providing on top of slab surface cement slurry mixed with water proofing compound thereafter providing cement mortar 1:4 (1 cement : 4 coarse sand) 20mm thick with polymer based water proofing compound and layer of new half broken bricks (coba) giving gaps of 15-20mm between broken bricks, providing necessary gradient for proper flow of water and providing cement slurry with water proofing compound spread over brick bat coba in cement mortar 1:4 (1 cement : 4 coarse sand) with water proofing compound filled in gaps of broken bricks and 20mm plaster in cement mortar 1:4 (1 cement : 4 coarse sand) mixed with polymer based water proofing compound, top finished smooth with neat cement and providing rope chequers including extending the water proof plaster 300mm on vertical surfaces with necessary chasing / treating of walls including providing and making gola as per drawing etc. Average thickness of the brick bat	Sqm	1,194.34	356.00	4,25,184.72
		The item also include providing and making khurraht 450mm x 450mm/ 300mm x 300mm with average minimum thickness of 50mm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) finished with aluminum foil and 12mm 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. (Plan area will be measured and paid)				
		TOTAL OF WATER PROOFING WORKS				14,79,014.28
16.0		SPECIAL ITEMS				
	NDSR	Providing & installation of approved quality vertical linear baffle ceiling made out of folded Aluminum. The baffle units shall be in size of 50mm (W) x 150mm (H) and 1000mm x 4500mm x 1mm (thk), non-perforated. The ceiling baffle units shall be installed at a distance of 300mm c/c in one direction. The baffle units shall be		8,781.01		
		shall then be cross connected to perforated L-angle primary grid and suspended with M6 threaded rod hangers spaced at 1200mm and pertaining to Class A Fire Rated, as per ASTM E-84 including all fixtures/ clamps etc.				
2.1		70% for Material Procurement This stage payment is subject to submission of Indemnity bond (in Maha-Metro approved format). Test certificates and invoice of the material supplied.		6,147.36	1,993.00	1,22,51,683.50
2.2		20% for Fixing		1,756.39	1,993.00	35,00,481.00
2.3		10% for Balance Work		878.19	1,993.00	17,50,240.50
6	NDSR	Boom lift 120 feet	Per day	12,673.33	20.00	2,53,466.60
		TOTAL OF SPECIAL ITEMS				1,77,55,871.60
		Grand Total of Schedule -D				17,40,30,266.49



**Name of Work : Range Hill Station & other balance works of
other stations of Pune Metro Rail Project**

SCHEDULE -E

Architectural & Site Development Works DSR ITEMS

Item	Description	Amount in INR
1	MASONRY WORKS	40,37,035.70
2	GRANITE AND STONE WORKS	-
3	LANDSCAPING AND EXTERNAL WORKS	54,25,564.15
	GRAND TOTAL OF SCHEDULE-E	94,62,599.86



Name of Work : Range Hill Station & other balance works of other stations of Pune Metro Rail Project					
SCHEDULE-E -Construction of Stations - Architectural and Site Development Works DSR ITEMS					
Item	Description	Unit	Rate with 18% GST	Total BOQ	
				Qty	Amount
1.0	MASONRY WORKS				
A	BRICK MASONRY				
1	Providing and constructing burnt brick masonry with approved quality bricks of standard size of class designation 7.5 (table moulded) with cement mortar 1:4 for basement and super structure including the cost of materials, labour charges, scaffolding, curing etc., complete for rectangular, curved or circular brick work etc. in pier or around the concrete columns/ walls all as per specifications, drawings and as directed etc. complete at any height including all	Cum	6,428.86	56.00	3,60,016.23
B	PLASTERING WORK				
6	Providing and applying 12 mm cement plaster of mix 1:4 (1 cement : 2 parts coarse sand + 2 parts fine sand) including providing galvanized chicken wire mesh at the junctions of concrete and masonry work including side laps of minimum 75mm and fixing in position with galvanized wire nails including scaffolding etc. complete.	Sqm	373.85	4,677.00	17,48,493.11
10	Providing and applying in two coats 20 mm cement plaster on external surfaces in 1:4 (1 cement : 2 parts coarse sand+ 2 parts fine sand) including providing galvanized chicken wire mesh at the junctions of concrete and masonry work including side laps of minimum 75mm and fixing in position with galvanized wire nails including scaffolding etc. complete etc.	Sqm	538.99	3,545.00	19,10,705.62
12	Providing and applying 6mm thick cement plaster to ceiling of mix 1:3 (1 cement : 3 fine sand) including hacking RCC, scaffolding, drip mold etc. complete.	Sqm	297.01	60.00	17,820.74
	TOTAL MASONRY WORKS				40,37,035.70
2.0	GRANITE AND STONE WORKS				
A	SAND STONE				
	TOTAL OF GRANITE AND STONE WORKS				
3.0	LANDSCAPING AND EXTERNAL WORKS				
1	Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method using PU mould, and in required colour & pattern over 50mm thick compacted bed of fine sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per				
1.1	80mm thick C.C. paver block of M-30 grade with approved colour, design & pattern.	Sqm	1,387.61	1,391.00	19,30,160.29
4	Providing and laying at or near ground level factory made curb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-Charge (length of finished curb edging shall be measured for payment). (Precast C.C. curb stone shall be approved by Engineer-in-Charge)	Cum	12,439.16	281.00	34,95,403.86
	TOTAL OF LANDSCAPING AND EXTERNAL WORKS				54,25,564.15
	TOTAL OF ARCHITECTURAL WORKS SCHEDULE-E				94,62,599.86



Name of Work : Rang Hiti station & other balance works of other stations of Pune Metro Rail Project		
SCHEDULE-G -Miscellaneous Works		
Item	Description	Amount in INR
1	Miscellaneous Works (items included in CPWD-DSR/PWD-SSR/PMC-SOR/PCMC-SOR/MJP-SOR)	5,00,00,000.00
	GRAND TOTAL OF SCHEDULE-G	5,00,00,000.00



Name of Work : Range Hil Station & other balance works of other stations of Pune Metro Rail Project		
SCHEDULE -H		
Architectural & Public Health Engineering		
Item	Description	Amount in INR
1	Architectural	28,43,198.50
2	Public Health Engineering	1,19,82,765.89
	GRAND TOTAL OF SCHEDULE-H	1,48,25,964.39



Name of Work : Range Hill Station & other balance works of other stations of Pune Metro Rail Project					
SCHEDULE-H -Construction of Stations - Architectural and Public Health Engineering					
S.No	Description	Units	Final Rate with 18% GST	BOQ	
				Qty	Amount
H1.1.1	Hollow Blocks				
1.2	Brick Masonry				
H2	STONE AND GRANITE WORKS				
2.1	Granite Stone				
2.1.1	Providing & Fixing Polished Granite Coping, bull-nosed over 20 mm thick cement mortar 1:4(1 cement: 4coarse sand) with joint treated with white cement mixed with matching pigment including Rubbing, Curing, Moulding & polishing to edge to give high gloss finish etc. complete.				
2.1.1.1	30 mm thick Jet black Granite	Rm	1,856.97	1,485.26	27,58,090.42
H8	PAINTING WORKS				
8.2	Providing white washing to new wall surface in three or more coats with lime of approved quality to give an even shade including cost of material, labour complete as per specification for all heights including scaffolding.	Sqm	67.93	1,252.80	85,108.07
	Subtotal Architectural				28,43,198.50
P1	Public Health Engineering				
1.1	Water Closet (European Type)				
	Providing and fixing pastel shade European type Water Closet with concealed P or S trap, C.P. bolts, nuts, C.I. chair or other hanging/fixing arrangement with multi connector to mains, solid plastic seat with lid, C.P. brass hinges and rubber buffers with wall mounted concealed dual low volume flushing cistern, C.P. brass screws and washers complete, including cutting holes in walls, floors and making good. Wall mounted sanitary porcelain W.C. Pan.	Nos	18,659.13	9.00	1,67,932.16
1.2	Health Faucet				
	Providing & fixing of health faucet of the closet mounting type with hose connected Two Way Bib Cock with flow restrictors / aerators with complete fittings. (All fittings of approved make)	Nos	1,998.51	9.00	17,986.58
1.3	Urinal				
	Providing and fixing vitreous chinaware urinal on RCC/CC/Masonry including GI clamps, paintings of fittings and brackets, cutting and making good to the wall floor wherever required all complete as per the direction of Engineer - in - Charge	Nos	25,451.78	6.00	1,52,710.67
	Large Flat Back Wall Hung Urinal in White Glazed Vitreous China 610mm x 410mm x380mm				
	15 mm Battery Operated Solenoid Valve with Infrared Sensor Mounted in a box with SS cover				
	CP Brass Chromium Plated Flush Piping from Valve to Urinal Terminated with a 15mm Screwed Spreader				
	32mm Nominal Bore CP Cast Brass Waste				
1.4	Bib Cock				
	Supply and Installation of CP brass Bib Cock (Heavy Grade) with screw-down type of approved quality conforming to IS : 781	Nos	2,360.84	24.00	56,660.23
1.5	CP Brass Auto Closing Pillar/Mixer tap				
	Providing and fixing of CP Brass Auto Closing Pillar/Mixer tap for best Indian make white vitreous chinaware wash hand basin as per direction of Engineer - in - Charge.	Nos	6,265.00	12.00	75,179.99
1.6	Heavy Quality CP Brass Angular Stop Cocks				
	Providing and fixing of heavy quality CP brass Angular Stop Cocks for best Indian make white vitreous chinaware wash hand basin mounted and European type Water Closet as per direction of Engineer - in - Charge, comprising of 15mm heavy quality CP brass Angular Stop Cocks with CP brass flexible connector pipe, nuts, washers etc.	Nos	2,332.53	24.00	55,980.80
1.7	Wash Basin (Counter Top Oval Wash Basin Size 660 mm x 460 mm)				
	Providing and fixing best Indian make white vitreous chinaware wash hand basin mounted on cantilever supports fixed to wall including making all connections, necessary fitting, screws and cutting and making good to wall and floor wherever required all complete as per direction of engineer - in - charge, comprising of counter top oval wash basin size 560 mm x 410 mm	Nos	12,882.14	9.00	1,15,939.30
1.8	Sink				
	Providing and fixing of, Single compartment stainless steel sink, drop-in, selfrimming,ledge-type and connected with a drain. It shall be provided with pre-punched fixture center hole, integral back ledge to accommodate deck-mounted fixtures, brushed interior and top surfaces, sound deadened as per direction of engineer - in - charge	Nos	12,998.77		
1.9	Bottle Trap (32 mm CP Brass (Cast) Bottle Trap)				
	Providing and Fixing of CP brass bottle trap for wash basin and urinals including CP waste fittings complete as per direction of engineer - in - charge, comprising of 32 mm CP brass (cast) bottle trap with extension piece to wall flange with rubber adopter for waste connection including connection with the drainage line	Nos	1,543.32	9.00	13,889.92
1.10	Floor Trap				
	Supply and Installation of Floor Trap (HCI Nahni Trap) shall be heavy cast iron as per IS 3989 with 100mm inlet and 80/100mm outlet with CP pressed steel grating	Nos	3,669.78	104.00	3,81,657.01
1.13	Fixing Cast Brass Clean Out				
	Providing and Fixing Cast Brass Clean Out Plug with suitable insert keys for opening in brass cap, male threaded joint with G.I socket caulked to pipe/fitting of H.C.I. or C.I. (I.A) pipe as required complete in all respects. (100 mm Dia)	Nos	591.06	14.00	8,274.90
1.14	Mirror				
	Supply and Installation of Mirror with aluminium beading all around and shall be approved make of size of 600 x650 x 5.5mm thick and fixed to the wall on wooden blocks with CP brass screws and CP washers.	Nos	3,512.39	9.00	31,611.47
1.15	Liquid Soap Container (Soap Dispenser)				
	Providing and fixing Soap Dispenser on Masonry/RCC/CC including all fitting and screws including cutting and making good the wall wherever required	Nos	1,411.98	9.00	12,707.78
1.16	Toilet Paper Holder				
	Supply and Installation of CP brass Toilet Paper Holder shall be 100mm long.	Nos	2,406.14	9.00	21,655.22
1.17	CP Brass Twin Coat Hooks Fixed to Wooden Cleats with CP Brass Screws				
	Providing and fixing CP brass twin coat hooks fixed to wooden cleats with CP brass screws, hooks.	Nos	1,257.99	9.00	11,321.87
1.18	Water Heater				
	Supply and Installation of vertical storage type hot water heater fixed to wall with anchor bolts & nuts, 20mm CP brass non return valve complete including making connection with 15mm dia CP connecting pipe on inlet and outlet, suitable length of power cable.				
	25 lit Capacity	Nos	24,285.52		
1.19	GI pipes and fittings for Water Supply System				



SCHEDULE-H -Construction of Stations - Architectural and Public Health Engineering

S.No	Description	Units	Final Rate with 18% GST	BOQ	
				Qty	Amount
	Supply & Install GI pipes & fittings conforming to IS 1239 Part I (heavy grade 'C' class pipe) for process of water supply distribution network, including all necessary fixings, accessories, supports, pipe work finishes, Pressure testing, cleaning and flushing as per Specification.				
a	20 mm	m	331.76	300.00	99,527.73
b	25 mm	m	405.36	470.00	1,90,519.96
c	32 mm	m	457.45	210.00	96,064.54
d	40 mm	m	577.47	188.00	1,08,564.93
e	50 mm	m	702.03	344.00	2,41,497.03
f	65 mm	m	817.52	50.00	40,875.94
g	75 mm	m	1,091.53	80.00	87,322.53
1.20	Enclosed Type Water Meter (Bulk Type)				
	Providing And Fixing Enclosed Type Water Meter (Bulk Type) conforming to IS:2373 and tested by appropriate authority with bolts, nuts, rubber insertions etc. (the tall pieces if required will be paid separately)	Nos	16,274.51		
1.21	Multi-Level Indicator Cum Controller				
1.00	Providing all materials and labour for supplying and fixing multi-level indicator cum controller, operating in electronic sensing probe and having the controller equipped with level monitoring system and phase monitoring system for automatic operations of various pumps and indicating water levels for various tanks and having multi-level 4 nos. Visual indications on panel with alarm system and timer including necessary cable and acknowledge facilities as per requirement and all complete as approved, water tanks i) Controller/Multilevel Indicators ii) Electronic sensing probe to cut-off domestic water pumps at low level in domestic water tank.	Nos	17,120.34	8.00	1,36,962.68
1.22	Pump for Water Supply System				
	Supply, Inspection, Testing, Delivery, Installation and commissioning of following Pumps with the specified capacity and Head including electrical motors, VFD, valves and all the necessary piping, fittings, accessories as per and Specification.				
	Electric Motor Driven Pump 5 HP (150lpm, 40m head) (1 Duty + 1 Standby)	Set	3,26,478.68	1.00	3,26,478.68
1.23	Submersible Pump for Waste water				
	Supply, Inspection, Testing, Delivery, Installation and commissioning of following Submersible Pumps with the specified capacity and Head including electrical motors, VFD, valves and all the necessary piping, fittings, accessories as per and Specification.				
	Electric Motor Driven Submersible Pump 5 HP 300lpm, 25m head) (1 Duty + 1 Standby)	Set			
1.24	Non Return Valve				
	Providing and fixing gun metal non-return valve of approved quality (screwed end)				
a	50mm Dia	Nos	1,839.98	10.00	18,399.78
b	65mm Dia	Nos			
1.25	Gate Valves				
	Providing and fixing gun metal Gate Valve with CI wheel of approved quality (screwed end)	Nos			
a	32 mm (For Domestic Water Pipe)	Nos	763.17	12.00	9,157.98
b	40 mm (For Domestic Water Pipe)	Nos	891.12	12.00	10,693.46
c	50 mm Dia (For Domestic Water Pump)	Nos	6,587.71	12.00	79,052.50
d	65 mm Dia (For Waste Water Pump in the subway)	Nos			
e	80 mm Dia (For BoreWell Pump)	Nos	9,451.28	10.00	94,512.84
1.26	Brass Ball Valve of Approved Quality (Screwed End)				
	Providing and fixing Brass Ball Valve of approved quality (screwed end), nominal bore of				
	20 mm	Nos	623.89	20.00	12,477.87
	25 mm	Nos	754.11	25.00	18,852.87
1.27	PRV with CI wheel of approved quality (screwed end)				
	Providing and fixing brass PRV with CI wheel of approved quality (screwed end), nominal bore of				
	25 mm	Nos	3,930.20	4.00	15,720.80
	32 mm	Nos	4,764.70	4.00	19,058.81
1.28	Strainer (Double Flanged Strainers with CI Body)				
	Supply, installation testing and commissioning double flanged strainers with CI body and SS 40-grade mesh strainer.				
	Size 100 mm	Nos	8,936.00	2.00	17,872.17
1.29	Float Valve				
	Providing and fixing of float valve with approved quality (screwed end)				
	Size 100 mm	Nos	19,272.83	8.00	1,54,182.68
1.30	Foot Valve				
	Providing and fixing of foot valve with approved quality (screwed end)				
	Size 65 mm	Nos	8,376.74		
1.31	C.I. Double Acting Air Release Valve				
	Providing and fixing C.I double acting air release valve of approved quality with bolts, nuts, rubber insertions etc. 20 mm dia				
	20 mm	Nos.	3,125.15	4.00	12,500.58
1.32	CHANNEL DRAIN				
	Providing and fixing of 300mm wide channel drain with Stainless Steel / Cast Iron grating.				
	300mm Wide	m	5,095.33	50.00	2,54,766.74
1.33	Submersible Bore Well Pump				
	Supply And Installation of Submersible Bore Well Pump with bronze or S.S. impeller, S.S. shaft with mechanical seal, submersible electric motor to work on 3 phase 440 volts 50 cycle A.C. supply, required length of water proof cable for connection to motor, complete in all respects, capacity 50000 lph, approx head 120 m, depth as required.	No.	2,37,782.43	1.00	2,37,782.43
1.34	Boring Tube Well				
a	Bore Well 300 mm	m	619.36	150.00	92,904.46
b	Construction of bore well all complete comprising with 300 mm dia bore in all classes of soil, murrum, disintegrated or soft rock.				
c	Providing and fixing 150 mm casing blind pipe with screwed joints	m	893.39	150.00	134,007.96
d	Construction of bore well all complete comprising with providing and fixing 150 mm dia casing blind pipe with screwed joints				
e	Providing and fixing 150 mm dia slotted pipes with screwed joints.	m	800.07	150.00	1,20,759.83
	Construction of bore well all complete comprising with providing and fixing 150 mm dia slotted pipes with screwed joints				



SCHEDULE-H -Construction of Stations - Architectural and Public Health Engineering					
S.No	Description	Units	Final Rate with 18% GST	BOQ	
				Qty	Amount
g	Gravel filter fill	m3	1,503.69	15.00	22,555.33
h	Construction of bore well all complete comprising with pea gravel filter fill between bore and pipe assembly		-	-	-
i	Cleaning developing for atleast 60 hrs	hrs	1,030.39	60.00	61,823.57
j	Construction of bore well all complete comprising with cleaning developing for atleast 60 hrs. and conducting yield tests as per IS 2800 part II		-	-	-
k	Testing water samples	LS	12,681.73	1.00	12,681.73
l	Construction of bore well all complete comprising with testing water samples from the well for biological and chemical contents.		-	-	-
m	Boring in hard rock	m	619.36	40.00	24,774.52
1.35	Supply & Installation of Cast Iron soil waste pipe shall conform to IS 1729, work complete including excavation in any type of soil, trenching, bedding and surround backfilling, compaction, disposal of surplus excavated material, dewatering, warning tape, all fittings such as bends and Y joints etc. including all necessary fixings, accessories, supports, pipe work finishes, Pressure testing, cleaning and flushing. These pipes are shall be used for Soil, Waste and Vent Pipe.		-	-	-
a	80 mm (G.I pipe)	m	1,214.96	150.00	1,82,243.63
b	100 mm (C.I pipe)	m	1,544.45	150.00	2,31,667.71
c	150 mm (C.I pipe)	m	2,782.05	150.00	4,17,307.53
1.36	Gully Trap		-	-	-
	Gully Trap construction including excavation in any type of soil, trenching, bedding and surround backfilling, compaction, disposal of surplus excavated material, dewatering. The square mouth gully trap shall be of 100mm dia, conforming to IS 651 of specified and/or approved stoneware, complete with cast iron grating. The size of CI frame and cover shall be 300 x 300mm and chamber shall be 300 x 300 x 675mm (internal). It shall be constructed of brick masonry walls 115mm thick in 1:4 cement mortar and M-15 concrete foundations.	Nos	6,022.69	-	-
	Rain Water Pipe		-	-	-
1.37	Wall Faced Pipe		-	-	-
	Providing & fixing on wall face CI pipe (working pressure 6kg/cm2) rain water pipes conforming to IS code including jointing with seal ring conforming to IS code leaving 10mm gap for thermal expansion.		-	-	-
a	100 mm dia	m	1,564.84	1,560.00	24,41,147.34
b	150 mm dia	m	2,491.05	1,620.00	40,35,507.08
1.38	Under Ground Pipe Work for Gravity Flow		-	-	-
	Providing and laying non-pressure NP2 class (light duty) R.C.C. Pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:		-	-	-
a	150 mm dia	m	397.44	572.00	2,27,334.97
b	250 mm dia	m	534.45	50.00	26,722.26
c	300 mm dia	m	577.47	-	-
1.39	Holder-Bat Clamps		-	-	-
	Providing and fixing M.S Holder-Bat Clamps of approved design to M.S pipe embedded and including cement concrete block 10 x 10 x 10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good etc.		-	-	-
a	100 mm dia	Nos.	232.12	50.00	11,606.14
b	160 mm dia	Nos.	250.23	50.00	12,511.69
1.40	Manholes & Covers		-	-	-
a	Manhole construction including excavation in any type of soil, trenching, bedding and surround backfilling, compaction, disposal of surplus excavated material, dewatering, blinding concrete, reinforced cement concrete of grade M25 and cover shall be equal to heavy roadway type made of ductile iron, with frame of cast iron Ft.20 for closed manholes.		-	-	-
b	Man Holes Depth ranges less than 1000mm	Nos.	9,058.38	25.00	2,26,459.38
c	Man Holes Depth ranges between 1000mm to 2000 mm	Nos.	11,322.97	26.00	2,94,397.34
	Sub total - Public health engineering				1,19,82,765.89



Name of Work : Range Hill Station - other balance works of other stations of Pune Metro Rail Project
SCHEDULE I - NS (ITEMS Q VIII)

Item	Description	Unit	Final Rate with 18% GST	BOQ	
				Qty	Amount
A CIVIL WORKS					
1	Providing Prefab water tank as per IS 2304 standard with 100% of PVC liner 760-800gsm and 100% of COLOREOND Zinc Aluminum High Tensile Steel Sheet/JSW Galvalume steel with 100% of Profile coated with Cream colour, which are laser cut and CNC rolled and bolted together to form the tank shell. This shell is then anchored to the ring beam with bolt chairs and anchor fastener. This sheet comes from Australian Fiberscope steel/JSW Steel. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings. Fire Water Tank 12000 LTR (2.67 m x 2.13m) - 1no. Flushing Water Tank 1100 LTR (2.67m x 1.28m) - 1no. Domestic Water Tank 7100 LT (2.67m x 1.28m) - 2no.	No's	12,28,252.56	1.00	12,28,252.56
2	Water proofing work - Ultratech seal Dry providing and applying coats of cement based acrylic emulsion polymer based elastomeric water proof coating with Ultratech seal dry water proofing compound at an interval of twelve hours at perpendicular direction to each other and protecting it with Ultratech supertucco compound having thickness of 3mm to 5mm over and above Ultratech seal and dry coating including preparing the surface with brushing, mopping and water jetting, repairing the cracks with Ultratech Stuccomaking the cracks wider and preparing the groove. The rates including 10 years service warranty subject to no structural alteration made on the finished surface. Rates are inclusive of nozzle grouting. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	Sqm	2,280.60	910.00	20,75,346.00
3	Rebarring of TMT bars				
a	8 mm dia	Nos	237.92	200.00	47,584.24
b	10mm dia	Nos	319.60	1,378.00	4,40,402.77
c	12mm dia	Nos	456.90	1,848.00	8,44,357.44
d	16mm dia	Nos	731.52	300.00	2,19,455.66
e	20mm dia	Nos	1,371.89	119.00	1,63,255.36
f	25mm dia	Nos	2,470.36	75.00	185,276.69
g	32mm dia	Nos	3,293.02	50.00	1,64,650.91
4	Labour charges for fixing of shear stud for staircase and mummy level including labour, Machinery and electricity charges etc complete in all respect of size as follows:- a) Shear Stud bolt of Size 12x65mm b) Shear Stud bolt of Size 16x100mm In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	Nos	33.33	14,000.00	4,66,688.53
5	Providing and fixing of Puddle Flange at Pump Room including necessary scaffolding complete in all respect excluding labour charges. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.				
a	1. PUDDLE FLANGE OR 25 MM DI PIPE 600MM LONG 6MM THK FLANGE PLATE	Nos	491.00	4.00	1,964.00
b	GI PUDDLE FLANGE 65MM PIPE L 600MM 6MM	Nos	1,138.90	7.00	7,972.30
c	GI PUDDLE FLANGE 80MM PIPE L 600MM 6MM	Nos	2,272.00	13.00	29,536.00
d	GI PUDDLE FLANGE 100MM PIPE L 600MM 6MM	Nos	3,280.00	20.00	65,600.00
e	GI PUDDLE FLANGE 150MM PIPE L 600MM 6MM PLATE	Nos	4,956.00	8.00	39,648.00
f	GI PUDDLE FLANGE 200MM PIPE L 600MM 6MM PLATE	Nos	7,080.00	6.00	42,480.00
g	GI vent Pipe 100mm dia X 1 mts long	Rmt	936.92	4.00	3,747.68
6	Detailing, Supply & Installation of GI Gutter having 1.2mm thick Girth of 1.76 M girth at Roof level including all joints, bolting, butt joints, end stopper downtake spout at every 12mtr etc. as per Approved by client-Roof level Gutter. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	Rmt	4,022.54	295.00	11,86,649.30
7	Detailing, Supply & Installation of GI Gutter having 2mm thick and 1.25 m girth including all joints, bolting, butt joints, end stopper downtake spout at every 12mtr etc. as per Approved by client. Platform level Gutter. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	Rmt	3,502.07		
8	Providing and fixing of Metal Deck Sheet for Deck Slab (Specification - TR 80 Profile, 1.2mm thickness, 275 GSM, 350 Mpa Strength - JSW make) of required length and width of approved make & Quality with design calculations from the supplier for casting of deck slab on spans with composite plate girder. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	sqm	2,383.93	6,652.25	1,58,58,509.07
9	Providing and fixing of GI Channel at stations including scaffolding	Rmt	5,347.73	110.00	5,88,250.41
10	Supply and installation of Pump motors for various locations Borewell, Waste Water and escalator pit - Borewell Pump 5.5 HP Motor.	No	1,37,226.31	1.00	1,37,226.31
	Supply and installation of Pump motors for various locations Borewell, Waste Water and escalator pit - Waste Water Pump 2 HP Sump location	No	91,291.66	1.00	91,291.66
	Supply and installation of Pump motors for various locations Borewell, Waste Water and escalator pit - Biodigester for flushing tank 3 HP Motor	No	99,806.64	1.00	99,806.64
	Supply and installation of Pump motors for various locations Borewell, Waste Water and escalator pit - Escalator Pit Pump 1 HP Motor In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	No	1,10,544.67	1.00	1,10,544.67
11A	Supply and fixing of Water Meter including all accessories complete in all respect A) WATER METER - B CLASS F/E 80mm-ITRON	No	38,635.56	1.00	38,635.56
11B	Supply and fixing of Water Meter including all accessories complete in all respect B) WATER METER - B CLASS F/E 50mm-ITRON	No	42,271.85	1.00	42,271.85
12	Providing and laying swing type cast iron non-return valve is marked of 80mm dia-Kartar make-NRV valve F/E 80mm	No	9,865.19	1.00	9,865.19
13	Supply and installation of Butterfly valves IS: 1095 with mating flanges generally as specified all complete- Butterfly valve - 100 LBC - 080mm/LQ TPN- 10BFV C1/C1/Nirile-Level Operated.	No	7,709.75	2.00	15,419.50



SCHEDULE I - NS ITEMS (CIVIL)

Item	Description	Unit	Final Rate with 18% GST	BOQ	
				Qty	Amount
14	Block wall cutting with diamond cutter for façade column fixing to the required size of 1000mm x 400 mm x 200 as directed by engineer in charge. In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	No	876.61	5.00	4,383.03
15	Design, supply, installation, testing and commissioning of Sewage Treatment plant based on Bio-Digester + Reed Bed technology In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings.	No	17,90,916.93	-	-
16	Bearing Pedestals & Seismic Arrester casting at Concourse & Platform level IN-SITU Providing M 40/20 concrete (cement as per technical specification) for structural elements at all levels like slabs, beams, shafts, walls, columns, pits etc., including centering, steel shuttering, scaffolding and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer. Rate shall include using of steel material for shuttering with suitable pads required for architectural finishes & steel props including of providing grooves, chamfers, moulding, cutout etc. with suitable arrangement in the formwork (Doka or equivalent), placing in proper position all types of inserts (contractor's or those provided by others), shear connectors etc. complete as per drawings, specifications and as directed by the Engineer. The rate shall also include construction joints as per specification and providing approved wire mesh/weld mesh at such location as approved by Engineer or as shown in drawings. (Including all lift & lead at all levels). In addition to the above, this item needs to be executed as directed by Engineer - in charge as per site requirements and approved drawings	Per No	5,790.86	308.00	17,83,584.88
17	Cleaning the surface, priming the same by KEMPER EP primer providing and applying KEMPER V210 treatment in two coats on the surface as par manufacturer by (KEMPER) cleaning the external surface of GI sheet area KEMPER V210 polyurethane base pals are a fast during waterproofing membrane with excellent chemical resistance properties. Kemper is elongation at break KEMPER polyurethane forms a tough flexible membrane film which eliminates the need for reinforcing layer. Reinforcement flees is	Sqm	4,389.60	724.00	31,78,070.40
18	Oasis Make M8CRY cooling antimicrobial, silver coated, modular Bi level drinking water fountain, SS Finish, ADA compliant, Wall recessed, Mechanically operated, light pressure operated, vandal resistant push button, delivers 60 LPH chilled water at 10 Degree Celsius on 90 degree ferneheit ambient temperature, enabled R134 refrigeremt for cooling, UV/sediment/carbon filtration enabled with unit. To be operated in between 40 PSI to 120 PSI. Certified from UL/NSF/ANSI/LEED/GRIHA. Including supply, installation testing & commissioning of UV and Sedimentation filters for TDS level less than 500PPM in water. Shall be Of make OASIS/EUREKA FORBES/KENT		1,98,240.00	2.00	3,96,480.00
19	Supply and installation of Stainless steel benches, 3 seater with backrest confirming to grade 304, satin finish, on Platform level UP & DN line of approved vendor as per the requirements of GC/MMRCL. SS benches should have warranty of 5 years against any damages of its welded or screwed joints. Benches shall have made as per the approved drawings from GC/MMRCL.	Nos	29,028.00	4.00	1,16,112.00
20	Providing and fixing 8mm thick lacquered/back painted glass over 12mm thick marine grade plywood with all accessories, staging, scaffolding & fixtures, adhesives, sealents etc at all heights to all complete. Item also includes the fixing of 12mm plywood as described of approved brand on MS subframe. MS item to be paid seperately.	Sqm	10,752.68	1,965.08	2,11,29,865.66
21	Providing and laying concrete pipes of I.S.NP. class of 250mm diameter in proper line, level and slope including necessary collars, excavation, laying, fixing with collars in cement mortar 1:1 and refilling the trench complete. Spec. No.: Bd.V.41, Page No. 573 (From gully chamber to SWD)	Rmt	620.48	350.00	2,17,168.00
22	Providing and laying concrete pipes of I.S.NP. class of 150mm diameter in proper line, level and slope including necessary collars, excavation, laying, fixing with collars in cement mortar 1:1 and refilling the trench complete. Spec. No.: Bd.V.41, Page No. 573 (From gully chamber to SWD)	Rmt	588.00	350.00	2,05,800.00
23	Providing & fixing of Tactile Tiles for footpath of size 300x300x60mm approved size and shape as per detailed drawings & specifications and instructed by engineer incharge.	Nos	1,120.00	1,550.00	17,36,000.00
24	Providing & fixing FRP Tree Grating for girth of 30cm to 60cm Section having size 1.5m x 1.5m x 75mm thick machine moulded steam cured cement concrete perforated slab for tree guard layed over crushed gravel or crushed stone in FRP having circular opening as per site requirements and as per detailed drawings & specs as directed by engineer incharge.	per tree	3,920.00	31.00	1,21,520.00
25	Providing and laying cement concrete flooring 50mm thick with M20 cement concrete laid to proper level & slope in alternate bays including compaction, filling joints, marking lines to give the appearance of tiles of 30cm x 30cm or other size laid diagonally/ square etc. finishing smooth (with extra cement) in any colour as directed and curing complete. With Natural Sand Spec. No.: Bd.M.6 Page No. 381	Sqm	658.56	1,810.00	11,91,993.60
26	Excavation for roadways in earth and soils of all types sand, gravel or soft murum including dressing, excavating the section to required grade, camber and side slopes & conveying the excavated materials with all lifts upto a lead of 50m and spreading for embankment or stacking as directed. By manual means with prior permission of S.E.	Cum	320.32	600.00	1,92,192.00



SCHEDULE I - NS ITEMS (CIVIL)

Item	Description	Unit	Final Rate with 18% GST	BOQ	
				Qty	Amount
27	Providing and laying factory made coloured interlocking Cement Concrete paver blocks of M50 grade, 100 mm thick with approved colour, design and pattern laid in 1:2 Cement mortar on 50 mm thick sand/grit base compacted by skid vibrator and levelled it. Laying paver blocks and filled the joints by fine sand and also filled the joint between paver and kerbstone by 1:1 Cement mortar along with compaction, curing etc. considering all lead and lift for material. If necessary take quality test for paver blocks as per directed by Engineer Incharge. (Specification IRC-SB-63-2004) (For Drop off bays)	Sqm	1,305.92	265.00	3,46,068.80
28	Providing and mixing integral crystalline admixture for water proofing treatment to RCC structures like basement raft, retaining walls, reservoir, sewage & water treatment plant, tunnels / subway and bridge deck etc. at the time of transporting of concrete into the drum of the ready-mix truck, using integral crystalline admixture @0.80% (minimum) to the weight of cement content per cubic meter of concrete) or higher as recommended by the manufacturer's specification in reinforced cement concrete at site of work. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90%, compared with control concrete as per DIN 1048 and resistant to 16bar hydrostatic pressure. The crystalline admixture shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.	KG	350.21	928.00	3,24,994.88
29	Providing and applying of swellable type water stop tape, 19mm x 25mm thick in linear meter (expansive nature) for construction joints treatment of RCC structure such as raft slab, retaining walls, water storage tank and at the junctions of raft slab with the retaining walls etc.. After cleaning the surface, one coat of required primer for swellable water stop tape shall be applied throughout the length of the joint @3.78 litre per 240 running meter. Over the primed surface swellable type water stop tape shall be placed. The work shall be carried out all complete as per specification and the direction of the Engineer-in-Charge. The product performance shall carry guarantee for 10 years against any leakage.	Meter	521.94	268.00	1,41,388.80
30	Supply & fixing of Hilti V M12x200MM chemical bolts at all heights including all requisite arrangements as required for staging/scaffolding etc.	Nos	318.00	234.00	74,412.00
31	Supply & fixing of Hilti V M12x200MM mechanical bolts at all heights including all requisite arrangements as required for staging/scaffolding etc.	Nos	331.00	2,041.00	6,75,571.00
32	Supply & fixing of Chemical Hilti RE500 V3 at all heights including all requisite arrangements as required for staging/scaffolding etc.	Nos	3,655.00	58.00	2,11,990.00
33	Providing and Fixing of Anchor Bolts / Studs at all heights including all requisite arrangements as required for staging/scaffolding etc.				
a	Anchor Bolt HSA M8x105	Nos	407.68	3,681.00	15,00,670.08
b	Anchor Bolt HSA M6x100	Nos	365.69	350.00	1,27,991.50
c	Anchor HAS-U 5.8 M12x160	Nos	1,059.50	244.00	2,58,518.00
d	Anchor HIT-V 5.8 M12X120	Nos	969.28	144.00	1,39,576.32
e	Anchor HIT-V 5.8 M20X500	Nos	6,259.82	156.00	9,76,531.92
f	Threaded rod AM27X700 8.8	Nos	14,829.48	572.00	84,82,462.56
g	Threaded rod AM27X400 8.8	Nos	8,143.65	208.00	16,93,879.20
h	Threaded rod AM24X480 8.8	Nos	1,565.66	512.00	8,01,617.92
i	Threaded rod AM24X240 8.8	Nos	2,193.62	10.00	21,936.20
j	Threaded rod AM32X1000 8.8	Nos	3,582.48	32.00	1,14,639.36
34	Core cutting work 200mm dia. with Diamond core cutting, Rates are including all Machinery, mobilization demobilisation and including the cost of scaffolding.	Inch	4,123.93	119.00	4,90,747.67
35	Core cutting work 27mm dia. with Diamond core cutting, Rates are including all Machinery, mobilization demobilisation and including the cost of scaffolding.	Nos	1,557.60	333.00	5,18,680.80
36	Proma seal or equivalent acrylic intumescent sealant 2 hours fire rated in accordance with BS 476-Part 20, IS 1530 Part 4 to seal gap & joint in fire rated walls with roof slab and around service penetration for 25 mm gap and 12 mm depth with compressible filler backing at all heights including all requisite arrangements as required for staging/scaffolding etc.	Rm	2,810.22	307.00	8,62,737.54
37	Providing and applying epoxy based paint of approved colour and shade to exterior surface in two or more coats including scaffolding, preparing the surface to receive paint etc complete rate includes preparation of surface, application of one or more coats of primer as per manufactures recommendations etc complete as per instruction of Engineer in charge	Sq m	487.34	9,000.00	43,86,060.00
38	Supply & fixing of insert plates in RCC girder for installing façade using mechanical anchor fastener (HST3 size M16 x 170mm)	Nos	1,378.24	3,964.00	54,63,343.36
39	Supply of MS shear stud for staircase & mummy level	Nos	70.80	14,000.00	9,91,200.00
Net Amount - NS Items (Civil)					8,30,45,875.00



Name of Work : Range Hill Station & other balance works of other stations of Pune Metro Rail Project					
SCHEDULE J - NS ITEMS (PLUMBING)					
S.No.	Item Description	Unit	Final Rate with 18% GST	BOQ	
				Quantity	Amount
1	Providing & fixing Electric control panel to open/close the solenoid valve at low/ high water level through level controller in soft water tanks, including wiring, level controller probes & other accessories as required to operate the system automatically.	Set	35,105.00	8.00	2,80,840.00
2	BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water/hot water circulation as specified				
a	80 mm dia	NOS	3,258.70	4.00	13,034.80
b	100 mm dia	NOS	4,290.14	4.00	17,160.56
c	150 mm dia	NOS	7,491.95	4.00	29,967.80
3	Providing and laying Non Pressure NP-3(Medium Duty) / NP- 4(Heavy Duty) class R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete (Fir Storm Water)				
a	250 mm dia. R.C.C. pipe NP3	Rmt	917.66	150.00	1,37,649.00
b	250 mm dia. R.C.C. pipe NP4	Rmt	989.30	300.00	2,96,790.00
c	300 mm dia. R.C.C. pipe NP3	Rmt	1,253.75	110.00	1,37,912.50
4	Design, Engineering, supply, installation, testing and commissioning of Root Zone Treatment Technology STP (Sewerage Treatment Plant) 10KLD STP work at Station. Outlet parameter PH Value -6.5 to 7.5 BOD ≤ 10mg/l COD ≤ 50mg/l Suspended Solid ≤ 10mg/l O & G ≤ 5mg/l	Nos	6,66,950.16	1.00	6,66,950.16
5	Rain Water Harvesting				
a	Bore well drilling (Ref. Direcurete GSDA Pune approved rate for 20-21 vide circular no 2444, dated 16 October 2020, Item A-1)	Rmt	594.72	90.00	53,524.80
b	PVC Casing- Providing and Fixing 180mm dia PVC Casing (6Kg/Cm2) (IS 4985-1988) (Ref. Direcurete GSDA Pune approved rate for 20-21 vide circular no 2444, dated 16 October 2020, Item U-1)	Rmt	1,008.05	12.00	12,096.60
c	PVC- CASING Lowering of 180 mm Dia PVC Casing (6Kg/Cm2) (IS 4985-1988) (Ref. Direcurete GSDA Pune approved rate for 20-21 vide circular no 2444, dated 16 October 2020, Item U-3)	Rmt	96.64	12.00	1,159.70
d	PVC CAP- Providing and Fixing PVC Cap 180mm diameter of above casing top etc. (Ref. Direcurete GSDA Pune approved rate for 20-21 vide circular no 2444, dated 16 October 2020, Item U-3)	Nos	297.36	2.00	594.72
e	Supply of with SS Rain Water Harvesting V wire filter screen assembly suitable for borewell casting pipe of 180 mm diameter, Filter Dimensions- 350mm dia X 750 mm ht, media-Pebble/ Quarts 150 microne SS mesh, 55304 filtering drum MS flange (As per per market rate)	Unit	54,119.52	2.00	1,08,239.04
f	Skilled labour for installation of with SS Rain Water Harvesting V wire filter screen assembly as per PWD SSR Page no 475 to 20	Nos	832.61	4.00	3,330.43
6	Boring/drilling bore well perfectly vertical for the specified depth suitable to receive required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge upto 90 metre depth below ground level.				
a	100mm dia	Mtr	328.71	60.00	19,722.60
7	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
a	150mm dia	Mtr	568.93	60.00	34,135.80
Net Amount - NS Items (Plumbing)					18,13,108.52



Name of Work : Range Hill Station & other balance works of other stations of Pune Metro Rail Project

SCHEDULE K - NS ITEMS (Architectural Works)

Item	Description	Unit	Final Rate with 18% GST	BOQ	
				Quantity	Amount
C	ARCHITECTURAL WORKS				
1	External Works				
1.1	External Facade				
a	Supply and Installation of Luxalon® 84R V-6 Sun Louver System :- Supply of Luxalon® 84R Plain Panel Aluminum Sun Louver System as manufactured by Hunter Douglas India Pvt. Ltd., of approved colour. The system shall consist of panel 84mm Wide x 16mm deep x 0.6mm Thick in standard length of up to 6m. The panel shall be coil coated in a continuous paint line, double baked & roll formed from stove enameled corrosion resistant Aluminum Alloy AA 3105/3005 for higher strength & roll forming characteristic. The panels will be coated exterior grade approved color. The panels shall be clipped on to a Baked & enameled Aluminum V-6 Stringer 33mm Wide x 48mm Deep made from 0.95mm thick baked & enameled Aluminum Alloy AA 3105/3005 (AL.Mg) in standard length of 5m in Black Colour with cutouts to hold the panels in a module of 111mm C/C. The first stringers shall be fixed at 150mm from both ends & thereafter at a distance of 0.75m to 1.2m depending on Wind Load. The Stringer shall be fixed to a suitable sub-structure / Wall with Nut/Bolt & Washer. Roll Forming :- The ceiling shall be manufactured on high speed, high precision roll forming machine configuration roller levelling process to ensure the flatness and to avoid the failure of metal at corners which may occur normally on press brake machine.	sqmt	9,130.17	1,000.00	91,30,170.00
b	Supply and Installation of Luxalon® SL-2 84R Plain Panel Canopy Sun Louvers manufactured by M/s. Hunter Douglas India Pvt. Ltd. or equivalent make of approved colour, consisting of Panels 84mm wide x 16mm deep x 0.5mm thick round edges panels length upto 6 mtrs. Coil Coated on a continuous paint line double baked and roll formed from enameled corrosion resistance Aluminium Alloy AA3105/3005 AL. Mg. for higher strength and good roll forming characteristics. The panels will be coated exterior grade approved color. Panel shall be clipped to baked enameled panel stringer of 38mm wide and 98mm deep x 0.95 mm thick in a standard length of 5 mtrs made of double baked enameled Aluminium Alloy AA 3105/3005 (AL. Mg.) with cutouts to hold the panel horizontally on the stringer in a module of 74mm centre to centre at a distance of maximum 1mtr. The Stringer shall be fixed to suitable structure by means of rigid fixing details. Green pro certification: For LEED certification by Indian Green Building Council (IGBC) and ISO 9001: 2015 Quality Management System Certification compliant with in house testing facility and should have their own manufacturing plant in India from last five years. The panels shall be manufactured on high speed, high precision roll forming machine with a roller levelling configuration roller levelling process to ensure the flatness and to avoid the failure of metal at corners which may occur normally on press brake machine.	sqmt	9,071.73	400.00	36,28,692.00
2	Bollards				
a	Supply & fixing precast cement concrete cylindrical Bollard of size as per specifications and 900 mm high (650 mm above finish level) , manufactured by M-30 grade of concrete & suitable reinforced & manufactured by vibro compaction process using FRP moulds , & with washed fine grit finish on the exposed surface of bollard of approved colour and texture, as per detail drawing as directed by engineer-in-charge.	No	2,253.80	170.00	3,83,146.00
3	Kota				
	Kota stone slab flooring over 20mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing compete with base of cement mortar 1:4 (1 cement : 4 coarse sand)	sqmt	1,923.89	4,580.00	88,11,401.32
4	supply and installation of approved make ventilated linear louver facade system 50mm Wide of approved RAL EXTERIOR GRADE coil coating. System comprising louvers 50(W)x75(H)x1mm Thick from enameled corrosion Resistance Aluminum Alloy AA3005 / AA5050 for higher strength and good Roll forming characteristics upto 6mtr length coil coated on a continuous paint line double baked and roll formed with six roller leveling process to ensure flatness of panels. grooved (Slotted Fastening Profile) by means of Locking Clip and Pop Rivet. Slotted Fastening ends and at a distance of maximum 1750 mm center to center across the panel span and Slotted Fastening Profile shall be fixed to a suitable sub-structure which will be paid in separate item. Louvers back shall be covered with aluminium profile minimum 1.0mm thickness to close the openings along the length. Manufacturer should have LEED certification by Indian Green Building Council (IGBC) and ISO 9001: 2015 Quality Management System Certification.	sqmt	12,139.99		
	Paint Finish: The louver panel shall be coil coated finish suitable for exterior applications. The coil is coated on a continuous paint line double baked and shall be stove enameled and finished with a special three layered coating system (consisting of first a conversion layer of thickness 800 - 2000 mg. / sq. mtr, a polyurethane basecoat of 16-20 microns, and a special top coat of polyamide particles of 8-12 microns thick to provide excellent abrasion and damage resistance) in a continuous coil coating process of the approved colour on the exposed side and the reverse side with epoxy. Paint performance criteria:- Coating thickness shall be 24 to 32 µm and determined by ECCA T1 • Colour difference shall be < 0.70 unit and determined by ECCA T3 • Pencil hardness shall be > H and determined by ECCA T3 • Corrosion resistance shall be 3 Years under creep < 2mm (Outdoor exposure) and determined by ECCA T19• U V Ray Resistance shall be determined by ECCA T19 No crack / flaking/blistering/chalking for minimum period of 5 Years. Colour change shall be < 5 units, gloss loss < 50% • Humidity Resistance as per ISO 6270, 1000 Hours blistering < B2S2• Salt /Acetic Acid Spray Test shall be as per ASTM G85, 1000 Hrs. under creep < 2mmMode of Measurements: Measurements shall be wall to wall without any deductions.				
	Supply & fixing of 20mm Shot blasted basalt stone for grand entry works including approved colour/pattern with approved groove all around at all levels for wall	sqmt	7,717.20	175.00	13,50,510.00



SCHEDULE K - NS ITEMS (Architectural Works)

Item	Description	Unit	Final Rate with 18% GST	BOQ	
				Quantity	Amount
	<p>Providing and fixing Mono absorbant noise barrier panel with size of 3mtr width x 3.5 mtr height to be considered with EN 1793 and v EN 1793 European standards.</p> <p>1. Technical specifications. Noise barrier shall compose of certified and tested panels according to the requirements of the European Standards as given below.</p> <p>2. Material Specifications:</p> <p>a) Posts shall be (Jindal make of equivalent) 152 x 152 x 23 kg UC column as pervarious indian and international standards, welded with 16mm/20mm Base Plate and Gussets, Posts will be Hot Dip Galvanised and Painted with 65 Micron. Posts shall be fastened to the flyover with M20 chemical grout anchors (minimum tensile strenght 8.8) with hot dipped galanised nuts and washers.</p> <p>b) Mono-absorbant Aluminium perforated sheets of 500mm x 3000mm x 1.2mm thick duly assembeled with self drilling screws. A slab of water repellent mineral/rock wool of 50mm thick and 120 kg/Cu.m density shall be used for better sound absorbant quality. Aluminium panels shall be powder coated. Panel height shall vary from 2m to 3.5m. The panels shall be straight or curved in accordance with alignment of the flyover.</p>	sqmt	13,776.00	3,500.00	4,82,16,000.00
Net Amount - NS Items (Architectural)					7,15,19,919.32

