

**Measurement Sheet**

**Name of work-** Proposal for Replacement of Old Pali Inlet of PHR of size 750>600 from Junction of S.V. road & Hill road to Junction of Khar Pali road and Ambedkar road in H/West ward.

	Description	Qty.	Rate	Per	Amount
1	<b>R2-HE-8-27-a /2018</b>				
	Cutting of existing cement concrete road upto specified depth by using Diamond Saw machine etc. complete in all respects and as directed by Engineer In Charge. Note : The charges for supplying water and electricity are exclusive of the rate worked out.				
	a) Upto 350 mm depth of cutting	6067.00	1486	Rmt.	9015562.00
2	<b>R2-RW-10-55 /2018</b>				
	Excavation in reinforced OR pavement grade concrete M-20 & above by using modern machinery (poclain with rock breaker, etc.) including with stacking of excavated material within 150 mm ø radius etc. complete upto any depth as specified & as directed, by the Engineer.				
		2204.00	1525	Cum	3361100.00
3	<b>R2-CS-EW-3/2018</b>				
	Excavation for foundation,substructures, basements, tanks, sumps, walls,chambers, manholes, trenches, poles, pits & general building works in soft/disintegrated rock, sand stone, stiff clay, gravel, cobblestone, hard laterite, water bound macadam, wet mix macadam, asphalt mix carpet of any type.pitching, soling, paths and hardcore, lime concrete, plain cement concrete,stone masonry and all types of brick/ block masonry below ground level, rock boulders, etc. for depths/ lifts upto 1.5M measured from the ground level, including dressing/ trimming the sides, leveling of bottoms, manual dewatering, removing rank vegetation, backfilling in layers not more than 200mm thickness,watering, consolidating, compacting to achieve not less then 97% Modified Proctor density conforming to relevant IS, stacking in measurable heaps for future use within owners space or disposing within an initial lead of 150m as directed, loading, unloading, leveling excluding shoring, strutting etc. complete as directed by Engineer-in-Charge.				
		2308.00	500	Cum	1154000.00
4	<b>R2-CS-EW-1/2018</b>				
	Excavation for foundation substructures upto 1.5 m etc as				
		18706.00	307	Cu.mt.	5742742.00
5	<b>R2-CS-EW-2-a/2018</b>				
	Extra over above item CS-EW-1 for lift from 1.5m to 3.0m				
		8553.00	71	Cu.mt.	607263.00
6	<b>R2-HE-1-6/2018</b>				
	Providing & Supplying, loading, transporting on site, unloading, lowering in trenches, assembling and jointing Ductile Iron pipes ( K-9) including chamfering cut edges of pipes and specials and fixing with Styrene Butadiene Rubber (SBR) Ring Gaskets for following diameters (Tyton joint pipes). The pipe shall confirm IS: 8329 & SBR Ring Gasket shall confirm IS : 5382 & IS : 12820. The rate is inclusive of cleaning, flushing & testing of water mains upto 6 kg/sq.cm etc complete in all respect and as directed by Engineer in Charge (Pipe shall be coated with cement mortar lining from inside and zinc coating				
	c) 150mm dia.	147.00	1689	R.mt.	248283.00
	d) 250mm	88.00	3103	R.mt.	273064.00
	e) 300mm	110.00	3679	R.mt.	404690.00
	g) 600mm	333.00	10581	R.mt.	3523473.00
7	<b>R2-HE-1-9</b>				
	Cutting of cast iron and CI/DI pipes of all classes with cutting tools, cutting machine and chamfering the edges etc complete in all respect and as directed by Engineer in Charge and for following diameters.				

	c) 150 mm	8.00	469	Rmt	3752.00
	d) 250 mm	7.00	581	Rmt	4067.00
	e) 300 mm	8.00	743	Rmt	5944.00
	g) 600mm	17.00	1652	Rmt	28084.00
8	<b>R2-HE-6-1A/2018</b>				
	Providing and fixing CI Mechanical joint collars suitable for CI/DI pipes, (dimensionally described in Table - 13 of IS : 13382/1992) inclusive of sealing rubber gasket of SBR (dimensionally described in IS :12820/1989 ), follower gland of CI and MS nut bolts zinc coated or otherwise protected from rusting etc complete as directed by Engineer in Charge				
	c) 150 mm dia	15.00	5693	Each	85395.00
	e) 250 mm dia	10.00	10091	Each	100910.00
	f) 300 mm dia	8.00	13671	Each	109368.00
	k) 600mm	4.00	34821	Each	139284.00
	<b>R2-HE-6-1/2018</b>				
9	Providing and fixing CI Mechanical joint split collars suitable for repair of cracks/ leakages of CI/ DI pipes (Inclusive of Odd size pipes) as per MCGM specifications complete with sealing rubber gasket made of SBR and galvanized 'T' bolts and nuts. The whole assembly mechanically and Hydraulically tested to the provisions laid down in IS 1538/1993 or IS 13382/1992 whichever is applicable. This item includes dewatering of body water cleaning of pipe and arre				
	Provision for leakages on existing main				
	c) 150 mm dia	4.00	12341	Each	49364.00
	e) 250 mm dia	2.00	19062	Each	38124.00
	f) 300mm dia	2.00	26361	Each	52722.00
10	<b>R2-HE-2-1/2018</b>				
	Supplying mild steel pipes to site of work / any municipal store fabricated in any ISI/ ISO certified company, from mild steel plates of approved quality and thickness, confirming to IS 3589 . The M.S plates shall be procured only from Jindal,TATA mettalics,SAIL, ESSAR or Ispat Steel. The test certificates and Challans from the manufacturer of plates shall be submitted to the corporation. The item includes marking, cutting, rolling bending, welding using automatic submerged arc type welding machine, factory testing of pipes, loading at fabrication yard/ factory transportation to site of work/ any municipal store using truck/ trailer, unloading and stacking near place of work etc complete as specified and as directed by Engineer in Charge. . Each pipe shall be about 5 to 7.5 mtr. long, fabricated as per IS:3589 and suitable for 10 kg/cm2 working pressure( spirally				
	c) 150mm 6mm thick	42.00	1536	R.mt.	64512.00
	d) 250mm 6mm thick	34.00	2524	R.mt.	85816.00
	e) 300mm 6mm thick	52.00	3018	R.mt.	156936.00
	f) 450mm 6mm thick	27.00	4498	R.mt.	121446.00
	g) 600mm 6mm thick	36.00	5981	R.mt.	215316.00
	s) 750mm 10mm thick	2259.00	12370	R.mt.	27943830.00
11	<b>R2-HE-2-9 /2018</b>				
	Transporting within 500 meters, laying in position to the correct line and level, M.S. pipes with/without any outcoating on prepared bedding in trenches including marginal cutting wherever required, assembling, tack welding the same. The rate to include loading, unloading, hoisting, etc. complete as specified and as directed by Engineer in Charge.				
	Above 8 mm Upto 12 mm thick plate.				
	c) Above 500 mm upto 750 mm dia pipe	2259.00	1902.00	Rs/Rmt	4296618.00
12	<b>R2-HE-2-3</b>				

	Supplying, transporting MS fabricated material on site, aligning, fixing in position, tack welding including marginal cutting, synthetic Rubber packings etc. a) Minor fixtures such as man hole frame & covers, pressure and non-pressure type blank flanges, loose flanges, rings, small pieces to form saddle pieces, ladders, platforms, stiffener rings etc. b) Major fixtures such as tees, domes, bends, branches, flange ring assembling				
		2.00	68243.00	MT	136486.00
13	<b>R2-WSP-5-27</b>				
	Providing, fabricating, M.S. composite bends of required diameter and shell thickness. The rate to include procurement of M.S. plates, transport, cutting the plates to the required size, rolling, tack welding, assembling in desired lengths to form composite bend, welding on automatic welding machine or manually and forming 'V' edge with or without shoulder cut/root face to both ends of the composite bend. The rate shall also include transporting composite bends with or without stiffener rings mounted on it, as required, by adopting suitable transporting means without any damage, from the fabrication factory to the site of work intact, including all loading and unloading fixing of accrow type props etc. complete as specified and directed by Engineer-in-Charge The shop paint shall be paid separately as per quoted rates and shall not be included under this				
		19.00	99535.00	MT	1891165.00
14	<b>R2-WSP-2-2-B-1/2018</b>				
	Transporting within 500 mtrs. and laying in position to the correct line and level, M.S. specials with/without any out coating such as distance pieces, straps, bends, tapers, etc. as per specification on pedestals or chairs upon formation. The rate to include loading, unloading, hoisting, marginal cutting wherever required, assembling and tack-welding, complete directed by Engineer-in-Charge. The diameter mentioned below shall be considered as clear internal diameter of pipe				
	8 mm. to 12 mm thick plate				
	i) From 750 mm. upto 1000 mm. dia. Pipe	100.00	2204.00	Rs/Rmt	220400.00
15	<b>R2-HE-2-12</b>				
	Field welding in all position with required number of runs, for M.S. pipes internally and/or externally including gauzing wherever necessary, fixing appurtenances and other accessories in connection of pipe laying work as per specification etc complete as specified and as directed by Engineer in Charge.				
	c) 6 mm plate thickness Butt Joint				
		50.00	1418.00	Rmt	70900.00
	f) 10 mm thick plate				
	Butt Jointing				
		1200.00	2557.00	Rmt	3068400.00
16	<b>R2-HE-2-13</b>				
	Field welding in all position with required number of runs, for M.S. pipes internally and/ or externally etc..				
	Lap Jointing with convex fillet weld				
	b) Leg length 6mm				
		27.00	601.00	Rmt	16227.00
	d) Leg length 10mm				
		144.00	810.00	Rmt	116640.00
17	<b>R2-HE-2-14</b>				
	Gas cutting (either square cut or V cut) pipes, plates etc. of thickness :-				
	b) above 5 mm up to 10 mm				
		1317.00	336.00	R.mt.	442512.00
18	<b>R2-HE-3-6/2018</b>				

	Supplying, Loading, transporting on site, unloading, ISI mark Glandless, Double Flanged sluice valves of PN 1.0 conforming to IS - 14846 in Grey Cast Iron IS: 210-1978 FG-260 without Bevel gear arrangement along with its complete appurtenances (i.e. including two nos. of tail pieces) & nuts, bolts, washers, packings etc., stacking the same as directed on site, hoisting, lowering and positioning the same in true plumb and level with tapers, saddles, flanges, etc. on live mains on CI / DI or MS water mains and for PE pipes along with Long Neck PE and flange for following diameters. Note : Sluice valves and all other materials supplied shall be as per the acceptance criteria of MCGM as given in specification.				
	d) 150 mm	3.00	42365	Each	127095.00
	f) 250 mm	2.00	79388	Each	158776.00
	g) 300 mm	3.00	99945	Each	299835.00
19	<b>R2-HE-3-16/2018</b>				
	Supplying, loading, transporting on site, unloading butterfly valves of PN 1.0 conforming to AWWA C-504 in SGI- IS 1865(Grade 500/7) material with appurtenances and flange adaptors, nuts, bolts, washers, packings etc. stacking the same as directed on site, hoisting, lowering and positioning the same in true plumb and level with tappers, saddles, branches flanges etc. on CI / DI or MS water mains and for PE pipes along with Long Neck PE and flange for following diameters. (Manually operated). The flange adapter used here conforms to AWWA C-219. Note : Butterfly valves, flange adaptors and all other materials shall be supplied as per the acceptance criteria of MCGM as given in specification.				
	c) 600 mm	2.00	389815	Each	779630.00
	d) 750mm	2.00	611574	Each	1223148.00
20	<b>R2-HE-4-2/2018</b>				
	Making connection on live CI/DI main of various sizes including cutting of pipes				
	e) 150 mm x 150 mm (C/c + Diversion)	6.00	13883	Each	83298.00
	i) 250mm x 250 mm (C/c + Diversion)	6.00	24600	Each	147600.00
	n) 300 mm x 300 mm (C/c + Diversion)	8.00	31529	Each	252232.00
21	<b>R2-HE-4-4/2018</b>				
	Making connection on live CI/DI water main of various sizes, including cutting of pipes with cutting machine, providing & fixing DI pipe upto 1 M. length, specials such as tees, bends, distance pieces, flanges, collars etc. (suitable for lead joint), jointing the pipes with lead joint and pumping out body water etc complete in all respect as directed by Engineer in Charge. Note : (1) The required excavation, shoring, encasement in cement concrete & sluice valve will be paid separately under relevant items. Note : (2) Rebate for salvation cost of old pipe has been considered and old pipes Shall be removed by the contractors as directed.				
	c) 450 mm x 450 mm (C/c + Diversion)	4.00	79585	Each	318340.00
22	<b>R2-HE-4-5/2018</b>				
	Making connection on live MS water main of various sizes, including cost of cutting, supplying, loading, transporting on site, unloading, lowering in trenches, assembling of required MS specials, MS pipe and jointing the pipes / specials etc. with butt and lap welding joint, removing body water etc complete in all respect as directed by Engineer in Charge. For following sizes. Note : (1) The required excavation, shoring, encasement in cement concrete & supply and fixing of sluice valve will be paid separately under relevant item.				
	g) 600 mm x 150 mm dia	1.00	20881	Each	20881
	i) 600 mm x 300 mm dia	1.00	27419	Each	27419
	k) 600 mm x 600 mm dia	3.00	52449	Each	157347
	m) 750 mm x 150 mm dia	1.00	26316	Each	26316
	n) 750 mm x 250 mm dia	2.00	30567	Each	61134
	o) 750 mm x 300 mm dia	3.00	32983	Each	98949
	p)750 mm x 450 mm dia	2.00	51863	Each	103726

	q) 750 mm x 600 mm dia (01 no. Prov.)	6.00	58275	Each	349650
	r) 750 mm x 750 mm dia (01 no. Prov.)	3.00	94749	Each	284247
23	<b>R2-HE-3-30</b>				
	Supplying, transporting on site and fixing Tamper proof Kinetic Air valves				
	d) 150 mm	12.00	129173.00	Each	1550076.00
24	<b>R2-HE-4-7/2018</b>				
	Discarding the existing live CI/DI water main by plugging the same including cost of pipes and specials, Supplying, loading, transporting on site, unloading, lowering in trenches, assembling the CI / MS pipes / specials of required diameter,etc. complete including cost of mechanical cap or and with spun yarn and molten lead including caulking etc complete in all respect as directed by Engineer in Charge & including cost of lead for following diameters. The cost of item is for plugging the water main on either side at one location. Note : (1) The required excavation, shoring, encasement in cement cement concrete & sluice valve will be paid separately under relevant items. Note : (2) Rebate for salvation cost of old pipe has been considered and o				
	c) 150 mm dia	2.00	10567	Each	21134.00
	d) 250 mm dia	2.00	16379	Each	32758.00
	e) 300 mm dia	3.00	20316	Each	60948.00
	f) 450mm dia	2.00	49782	Each	99564.00
25	<b>R2-CS-CW-2-a-1</b>				
	Providing and laying in position ready mixed plain cement concrete, using fly ash and cement content as per approved design mix from Engineer-in-charge and fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS 456 and uniform blending with cement is to be ensured in accordance with clauses 5.2 and 5.2.1 of IS: 456-2000 in the items of ready mixed concrete and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer,manufactured as per mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, including the cost of centering, shuttering and finishing, including cost of curing, admixtures in recommended proportions as per IS : 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge.M-20 grade plain cement concrete (cement content considered @ 260 kg/cum).				
		3027.00	6963.00	Cum	21077001.00
26	<b>R2-CS-CW-2-a-3</b>				
	Providing and laying in position ready mixed plain cement concrete, using fly ash and cement content as per approved design mix from Engineer-in-charge and fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS 456 and uniform blending with cement is to be ensured in accordance with clauses 5.2 and 5.2.1 of IS: 456-2000 in the items of ready mixed concrete and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer,manufactured as per mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, including the cost of centering, shuttering and finishing, including cost of curing, admixtures in recommended proportions as per IS : 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. M-10 grade plain cement concrete (cement content considered @ 220 kg/cum).				
		604.00	6498.00	Cum	3924792.00
27	<b>R2-CS-CW-1-C/2018</b>				
	P/L M.10 c.c.for bedding etc.				
		23.00	6236	Cum	143428.00

28	<b>R2-HE -8-4</b>				
	Providing and laying 200 mm thick hand sets dry rubble soling				
		3731.00	332.00	Sqm	1238692.00
29	<b>R2-CS-MW-3b/2018</b>				
	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 3.5 and above in foundation and plinth in: Cement mortar 1:4 (1 cement : 4 coarse sand)				
		56.00	6930.00	Cum.	388080.00
30	<b>R2-SWD-58</b>				
	Providing 20 mm thick cement plaster in cement mortar 1:2 including neat cement rendering (without water proofing compound) as specified & as directed by Engineer-in-Charge..				
		91.00	376.00	Sqm	34216.00
31	<b>R2-CS-CW-1-B/2018</b>				
	Nominal Mix of 1:2:4 (1 cement OPC: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)				
		74.00	6821.00	Cum.	504754.00
32	<b>R2-HE-2-16</b>				
	Providing and fixing MS frame and cover with its complete assembly				
		5830.00	78.00	kg	454740.00
33	<b>R2-WSP-2-19</b>				
	Providing and applying Cement mortar lining of specified thickness with proportion of cement-sand ratio (1:1) by weight for underground and aboveground pipeline by mechanical trowelling i.e. with the use of mortar lining machine and including curing etc.complete as per specification and as directed by Engineer-in - Charge				
		5662.00	445.00	Sqm	2519590.00
34	<b>R2-WSP-2-20/2018</b>				
	Providing Cement mortar lining of specified thickness of 12mm with proportion of cementsand ratio (1: 1) by weight for underground and aboveground pipeline such as bends, tapers,cross connections,dipping wheremachine lining is not possible,by hand lining including curing etc.as per specification and as directed by Engineer-in -Charge				
		312.00	538	sqm	167856.00
35	<b>R2-WSP-5-32</b>				
	Providing and fabricating specials and fixtures, Dished closures such as manhole covers of required size and shape from M. S. Plates and other structural steel. The rate to include procurement of plates and other structural steel, transport, cutting the plates and structural steel to the required size, rolling, bending, tack welding, assembling in desired size and shape and thickness, welding on automatic welding machine or manually and forming 'V' edge with or without shoulder cut/root face to both ends wherever required. The rate shall also include transporting specials and fixtures by adopting suitable means without any damage, intact to the site of work including all loading and unloading etc. complete as specified and as directed by Engineer-in -Charge. . The rate to include cold pressing, drilling holes, grinding wherever necessary, supply of bolts, nuts, washers, etc. complete as per drawing. The shop paint shall be paid separately as per quoted rates and shall not be included under this item.				
	For 450mm dia Manhole opening 10 no.s	3.00	104101	MT	312303.00
36	<b>R2-WSP-2-18-A-2</b>				
	a) Hydraulic testing of M.S. Pipeline to the specified pressure for the length upto 1 km.				

	ii) 750 mm dia	3.00	36976.00	Km	110928.00
37	<b>R2-WSP-2-16-A</b>				
	Providing permanent test points on 750mm dia water main	2.00	32045.00	Nos.	64090.00
38	<b>R2-RW-1-18</b>				
	Levelling, watering & rolling by vibratory roller IDD-22 weighing not less than 10 tonnes & preparing the ground to the required grade & camber (only to be used for reinstatement for trench in road work) as per New Road Specifications.	5536.00	19.00	Sqm	105184.00
39	<b>R2-RW-2-21/2018</b>				
	Providing & laying, spreading & compacting specified crushed stone in granular subbase course including premixing the material in mechanical mixer (pug mill or approved type), spreading of mixed material in uniform layer of 100 mm to 75 mm (compacted thickness each) with motor grader or paver on prepared murum surface & compacting with 10 tonne vibratory roller to achieve desired density including all material, labour, machinery, lighting, barricading to all lifts & lead, maintenance of diversion etc. complete (metal gradation from 75mm to 75 micron as per prevailing MCGM specifications for Roadworks clause no. 210).	2419.00	2547	Cu.mt	6161193.00
40	<b>R2-RW-2-22/2018</b>				
	Rebate for not using motor grader / paver for laying of Granular Sub base in RW-2-21	2419.00	-93	Cu.mt	-224967.00
41	<b>R2-RW-2-20/2018</b>				
	Providing & laying, spreading & compacting graded crushed stone aggregate to wet mix macadam to the satisfaction of Engineer including premixing the material with water to OMC in mechanical mix (pug mill) carriage of mix material by tipper to site, laying in uniform layer of 75 mm to 100 mm (compacted thickness each) with sensorpaver finisher on prepared subbase & compacting with vibratory roller (10 tonne) to achieve desired density including lighting, guarding barricading & main tenance of diversion etc. as directed by the Engineer, ( Rebate for not using sensor paver should be taken,(metal gradation from 53 mm to 75 micron as per prevailing MCGM specifications for Roadworks clause no.240).	2350.00	2937	Cu.mt	6901950.00
42	<b>R2-RW-10-32/2018</b>				
	Providing and laying Dry Lean Concrete base including providing coarse and fine aggregate to the specified gradation using minimum cement content 150kg/cum of concrete with OPC 43 grade cement, mixing of concrete as per approved design mix using mechanised batch mix plant of appropriate capacity, transporting and laying with self propelled paver with electronics ensordevice and compacting with vibratory roller of minimum 80-100 KN static weight to give desired compacted density and average compressive strength of 10MPa at 7day sand curing with liquid curing compound and sprinkling water and covering with moisthesiancloth or ponding of water or 7days including providing construction joints, including all material, labour, machinery with all leads and lifts etc. complete as specified and as directed	1102.00	4481	Cu.mt.	4938062.00
43	<b>R2-RW-10-33 /2018</b>				

	Providing & laying M-40C.C.avg. compressive strength 45MP aavg. flexural strength of 5.0MPa (As per IRC15-2002.N.1.6) procured from M.C.G.M.approved R.M.C. plant including use of approved make of plasticizer/retarder & Contractor's water with ice flakes and transported by transit mixer and placing at work site . Compacting, finishing, initial curing by approved curing compound & Contractor's water and tarring the sides of slab with hot bitumen as specified and directed (w/c ratio 0.4 maximum)(vata for curing will be paid separately.) (MINIMUM CEMENT CONTENT 350 kg/m³)				
		2180.00	7968	Cu.mt.	17370240.00
44	<b>R2-RW-10-18/20185</b>				
	Providing & laying water proof paper of 40 GSM including overlap (to be not less than 10cm) etc. complete as specified as directed.				
		7320.00	11	sqm	80520.00
45	<b>R2-RW-10-11/2018</b>				
	Cutting of construction & dummy joints of M-35 C.C. & above slab by mechanical means within 10 to 16 hrs of casting of bay/slab as directed. A) Transverse dummy joints 100mm deep or 1/3 thickness of concrete pavement & 6 mm wide.				
		3984.00	59	Rmt	235056.00
46	<b>R2-RW-10-12/2018</b>				
	Cutting of construction & dummy joints of M-35 C.C. & above slab by mechanical means within 10 to 16 hrs of casting of bay/slab as directed B) Longitudinal construction joints 100mm deep or 1/3 rd thickness of slab & 6 mm wide				
		3369.00	59	Rmt	198771.00
47	<b>R2-RW-10-23/2018</b>				
	Dressing of M-35 & above new C.C. pavement, dummy, transverse, longitudinal & expansion joints with hot rubber used sealing compound conforming to IS 1834-1984 after proper cleaning with compressed air, applying required primer & providing a layer of lime powder over hot sealing compound etc. complete as directed. A) Sealing 6mm wide dummy/transverse joints with a depth of 100mm or 1/3rd thickness of concrete pavement.				
		3984.00	92	Rmt	366528.00
48	<b>R2-RW-10-24/2018</b>				
	Dressing of M-35 & above new C.C. pavement, dummy, transverse, longitudinal & expansion joints with hot rubber used sealing compound conforming to IS 1834-1984 after proper cleaning with compressed air, applying required primer & providing a layer of lime powder over hot sealing compound etc. complete as directed. B) Sealing of 6mm wide longitudinal joint with depth of 100mm or 1/3rd thickness of concrete pavement.				
		3984.00	92	Rmt	366528.00
49	<b>R2-RW-10-16/2018</b>				
	Providing & fixing in position mild steel tie bars of 12mm dia 55cm long & 45cm C/C whenever directed including handling , wrapping with paper for half length, fixing, straightening, wastage etc. complete in all respect as directed.				
		3.00	63226.00	MT	189678.00
50	<b>R2-CS-SS-06-c</b>				
	Providing and fixing the Mechanical Anchor Fasteners as specified below of Hilti Make or equivalent confirming to IS 1367 (Part 3) at required locations and level including drilling the hole, cleaning and anchoring the bolt as per manufacturers specifications etc. complete as directed by Engineer In Charge.				
	M12x115	5020.00	65.00	Each	326300.00

51	<b>R2-RW-10-17/2018</b>				
	Providing & fixing in position M.S.dowel bars of 32mm dia 55cm long & 30cm C/C whenever directed including handling,fixing,etc.complete(no extra payment will be made for applying bitumen & ease to dowel bars)				
		2.50	62904.00	MT	157260.00
52	<b>R2-RW-10-19/2018</b>				
	Providing & constructing cement vata sinc/m 1:10 at 0.6m x 0.6m c/c admeasuring 0.09 mat bottom,0.04 mat top & 0.075m deep & maintaining the same throughout 14days curing & removing the same thereafter, as directed.				
		7320.00	78	sqm	570960.00
53	<b>R2-RW-3-20/2018</b>				
	Providing & Fixing in the carriage way interlocking 100 mm thick grey cement concrete unishape pavers in Red (Terra Cotta), Black, Brown or any colour unishape (monolithic-single layer precast concrete blocks) with pigment @ 3% by weigh to fcementhaving average crushing strength of not less than 50N/mm <sup>2</sup> as per technical specifications and IS CODE 15658:2006, placed on average compacted thickness of 25mm well graded sand cushioning uniformly compacted with proper capacity mechanical compactor with required level, grade and camber etc. complete as specified and as directed by the Engineer.				
		49.00	1213	Sqm	59437.00
54	<b>R2-RW-3-21/2018</b>				
	Removing & refixing inter locking concrete pavers of 100mm thick, of any size, shape and colour considering 10% breakage area of paver block while removing same from position and replacing the same by new paver blocks having average crushing strength not less than 50N/mm <sup>2</sup> as per technical specifications and IS CODE 15658:2006, placed on average compacted thickness of 25 mm well graded sand cushioning uniformly compacted with proper capacity mechanical compactor with required level, grade and camber etc. complete as specified and as directed by the Engineer.	32.03			
		33.00	251	Sqm	8283.00
55	<b>R2-HE-3-17/2018</b>				
	Supplying, loading, transporting on site, unloading butterfly valves of PN 1.6 conforming to AWWA C-504 in SGI- IS 1865(Grade 500/7) material with appurtenances and flange adaptors, nuts, bolts, washers, packings etc. stacking the same as directed on site, hoisting, lowering and positioning the same in true plumb and level with tappers, saddles, branches flanges etc. on CI / DI or MS water mains and for PE pipes along with Long Neck PE and flange for following diameters. (Manually operated). The flange adapter used here conforms to AWWA C-219. Note : (1) Butterfly valves, flange adaptors and all other materials shall be supplied as per the acceptance criteria of MCGM as given in				
	c) 600 mm dia BFV	1.00	532827.00	Each	532827.00
56	<b>R2-RW-10-44/2018</b>				
	P/L Controlled Low Strength Material (CLSM) having avg.compressive strength 5.0 Mpa procured from M.C.G.M. approved R.M.C. plant including use of approved makes plasticizer/ retarder & transported by transit mixer & placing at worksite, compacting, finishing, curing etc. as specified & directed by the Engineer. (MINIMUM CEMENT CONTENT 200 kg/m <sup>3</sup> )				

		2172.81	4410.00	Cum	9582111.06
57	<b>R2-RW-5-20/2018</b>				
	Providing and applying PRIME COAT with CATIONIC BITUMEN EMULSION (SS) @ 7 to 12 Kg. of 10Sqmt over prepared surface to receive bituminous mix by applying PRIMER with mechanical spray bitumen, including cleaning of road surface etc. completed, as directed for Low Porosity surface & the primed surface shall be allowed to cure for at least 24 hours or any other higher period, as is found to be necessary to allow all the moisture or volatiles to evaporate before any				
		2387.37			
		2388.00	57.00	Sqm	136116.00
58	<b>R2-RW-5-24/2018</b>				
	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.25 to 0.30 Kg. of Sq.mt over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc. completed, as directed for DRY & HUNGRY BITUMINOUS SURFACES (As per prevailing MCGM specifications for Roadworks Clause No. 314)	2170.34	35.00	Sqm	75961.90
59	<b>R2-RW-5-23/2018</b>				
	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.2 to 0.25 Kg. of Sq.mt over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc. completed, as directed For NORMAL BITUMINOUS SURFACES & the tack coat shall be left to cure	2170.34	33.00	Sqm	71621.22
60	<b>R2-RW-5-48/2018</b>				
	P/L hot Premix Dense bituminous macadam with 4.50% bitumen content of grade 30-40 to the required line, level, and camber rolling with 10/12 M.T. power, vibratory roller & sensor paver etc. complete as specified and as directed	2170.34	440.00	Sqm	954949.60
	<b>R2-RW-5-04 A/2018</b>				

	P/L minimum 30 mm hot premix Bituminous concrete with 6.00% of bitumen (VG-30 Grade + Waste Plastic) content by weight of mix, (the type of plastic to be used in pavement construction, the design of Mix and manufacturing process to prepare the desire mix shall be as per IRC:SP:98-2013 & the proportion of waste plastic shall be 8% by weight of bitumen) using new material any where as directed including Rolling with 10 MT Pneumatic, power & vibratory roller & using sensor paver to the required grades, level, camber with lime filler of 2% by weight & antistripping agent @ 1% of bitumen content by weight etc. complete. (As per prevailing MCGM specifications for Road works clause no.364)				
		1538.00	339	sqm	521382.00
61	<b>R2-RW-5-64/2018</b>				
	P/Lmastic asphalt 40mm thick with10/20 grade bitumen including producing the same at computerised batch mix plant,transporting the same to site by means of mastic cookers,laying the same without mastic paver and including all necessary tools,labours & barricading,spreading of aggregates asantiskid measures by means over newly laid mastic asphal as per prevailing MCGM specifications clause no.365 of 'Road work' as directed by Engineer in charge (Note: The material specifications/gradation & content shall b as specified in the relevant I.S. Codes.)				
		824.00	1571.00	Sqm	1294504.00
62	<b>R2-CS-EW-13/2018</b>				
	Providing and removing open or closed shoring and strutting in the trenches/ pits for all depths as per specifications/ drawings and or as directed by Engineer-in-charge by including walling, struts, open poling boards, horizontal sheeting, runners, dog spikes by using timber etc. complete.				
		11295.00	715.00	Sqm	8075925.00
63	<b>R2-RW-10-46/2018</b>				
	Providing and fixing pre-cast Central Median divider Type-I of R.M.C. in M-20 C.C. on Road as per drawing, finished neatly, compacting, curing, with form work, etc, including bedding of R.M.C. of M-10 C.C, 15 cm thick, filling of joints in C.M. 1:2 & painting the exposed surface with 3 coat of road marking paint, Grade-I of approved colour and quality including required excavation in C.C., asphalt etc, and removing the same any where in City & Sub limit, levelling the same as specified and as directed by the Engineer. ( Note:-Every 10 dividers shall have 40 mm. dia. hole along the center line of divider at formation level of road to drain off rain water / excess water.)				
	During execution of work between the road.(Provision)	1000.00	1685.00	Rmt	1685000.00
64	<b>R2-HE-3-20/2018</b>				
	Supplying, loading, transporting on site, unloading butterfly valves of PN 1.0 conforming to AWWA C-504 in SGI-IS1865(Grade 500/7) material with appurtenances, nuts, bolts, washers, packings etc. stacking the same as directed on site, hoisting, lowering and positioning the same in true plumb and level with tappers, saddles, branches flanges etc. on CI / DI or MS water mains and for PE pipes along with Long Neck PE and flange (Manually operated). Note : Butterfly valves and all other materials shall be supplied as per the acceptance criteria of MCGM as given in specification.				
	d) 750mm dia	2.00	339095	Each	678190.00
			<b>Total=</b>		<b>162438538.78</b>
			<b>Say</b>		<b>162438539.00</b>
	Sd/- S.E.W.W.(C).W.S.	Sd/- S.E.W.W.(C).W.S.	Sd/- A.E.W.W.(C).W.S	Sd/- E.E.W.W.(C).W.S.	