

Name of work: Design of runway resurfacing and extension at Bathpalathang Domestic Airport
Location : Bumthang, Bhutan.
Client : Department of Air Transport, MoIC.
Consultant: United consultancy JV LNTIEL.

Sl.No	Code	Description	Unit	Qty	Rate	Amount
1	RW0006	Earthwork in excavation over areas, exceeding 300mm in depth, 1.5 m in width as well as 10 sq.m on plan including disposal of excavated earth (disposed earth to be levelled and neatly dressed) - Ordinary Soil	CuM	154390.40		
2	RW0030	Construction of embankment by laying dry earth in horizontal layers not exceeding 200mm in depth(compacted), including watering,power rolling,dressing and preparation of site with selected excavated earth within 50mm lead. It shall ensure that the embankment material when compacted should not be less than 95% as in Table 300-2 of MoRTH.	CuM	12505.82		
3	RW0035	Providing and laying filter material (600mm wide) in trenches, sides of foundations, walls etc. with 100 to 200 mm stones wherever applicable.	CuM	2280.00		
4	SM0120	Providing & filling hand-packed stone in G.I mesh 4mm (8swg)including supplying and weaving of mesh complete - Double-knotted mesh...100mm	CuM	2872.00		
5	SM0122	Providing & filling hand-packed stone in G.I mesh 4mm (8swg)including supplying and weaving of mesh complete -Chain-link mesh...100mm	CuM	1609.85		
6	AR1	Providing and laying of bank protection layer(stone/boulders filling) in order to prevent the slope against scouring by river. The work shall be carried out as per the drawings and instruction of the site engineer. The boulder/stone layers shall be atleast 100cm thickness and one boulder/stone shall not be lighter than 200kg. The boulder shall be so placed that they interlock against each other to stay in position securely against the river current. The supply, delivery, loading, offloading and storage shall be included in the rate.	CuM	6756.00		
7	RW0096	Construction of French drain, including jungle clearance, earthwork in excavation, levelling of excavated earth to the sides, filling drain with 50-100 mm stones, complete as per design - Drain Size 1 m X 1.5m	Mtr.	1800.00		
8	RW0121	Preparation of sub grade with proper camber by excavating earth to depth equal to pavement thickness, consolidation with roller, disposal of surplus earth up to 50m . The degree of compaction should not be less than 98% of modified proctor density.	CuM	7500.00		
9	RW0130	Providing and laying Granular sub-base course (GSB) to required degree of compaction with proper formation of cross fall using motor grader for laying and compacted to required density as per material gradation and aggregate quality specified	CuM	3500.00		
10	RW0131	Providing and laying wet mix macadam graded aggregate base course to required degree of compaction with proper formation of cross fall by using well graded crushed aggregates premixed with OMC using suitable mixer, motor grader as per material gradation and a aggregates quality specified	CuM	3100.00		
11	AR2	Providing and laying of Hot Mix Semi Dense Asphaltic Concrete(SDAC) using crushed stone aggregate of quality, size and grading as specified and 2% cement by weight of aggregates as filler of quality as specified and Viscosity Grade Bitumen (supplied in bulk) in proportions as per job mix formula and laid to specified levels, grade and camber as per specification, drawings and as directed by the Engineer-in-Charge including compacting with 8-10 tonne, preferably vibratory road roller of adequate capacity to achieve the specified values compaction, strength, surface accuracy complete [for tendering purpose VG bitumen of grade VG-10 content shall be taken as 114 kg/m3 of mix supplied in bulk produced by Govt. Refineries and 2% cement by weight of aggregates as filler material].	CuM	3700.00		
12	AR3	Providing and laying of Hot Mix Dense Asphaltic Concrete (DAC) using crushed stone aggregate of quality, size and grading as specified and 2% cement by weight of aggregates as filler of quality as specified and Viscosity Grade Bitumen (supplied in bulk) in proportions as per job mix formula and laid to specified levels, grade and camber as per specification, drawings and as directed by the Engineer-in-Charge including compacting with 8-10 tonne, preferably vibratory road roller of adequate capacity to achieve the specified values of compaction, strength, surface accuracy complete [for tendering purpose VG bitumen of grade VG-10 content shall be taken as 135 kg/m3 of mix supplied in bulk produced by Govt. Refineries and 2% cement by weight of aggregates as filler material].	CuM	2620.00		
13	AR4	Providing and applying primer coat with RS1 grade bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.70 to 1.00 kg/sqm using mechanical means - 5.1(502)- MoRTH	Sq.M	30933.00		
14	AR5	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.40 to 0.50 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.- 5.2(503) - MoRTH	Sq.M	36000.00		
15	RW0209	Providing & fixing G.I chain-link mesh including fixing of post or struts, G.I staples (excluding the cost of posts/struts, earthwork, concrete etc.) - 4mm (8 SWG) x 50mm	Sq.M	3632.00		
16	SW0021	Steel work welded, in built up sections, trusses, frame-works including cutting, hoisting, fixing and appl. Priming: In Tees, angles, flats and channels. The MS flat needs to be nutted to hold on the chain link as per the supervising engineer's instruction	KG	38989.03		
17	EW0105	Excavation in foundation trenches or drains not exceeding 1.5m in width or area 10 sq.m on plan, including dressing & ramming, disposal of surplus soil within 50m lead & 1.5m lift - ordinary soil	Cu.M	2551.60		
18	SM0072	Providing and laying Hand packed stone filling or soling with stones - 100mm	Cu.M	136.20		
19	CW0005	Providing and laying in position plain cement concrete excluding the cost of centering and shuttering - All work upto plinth level.- 1:3:6 (1 cement : 3 sand : 6 graded gravels 20 mm nominal size)	Cu.M	510.76		
20	SM0007	Providing & laying Random Rubble Masonry with hard stone in foundation & plinth - In cement mortar 1:6	Cu.M	290.40		

21	AR6	Providing and fixing concertina coil fencing with punched tape concertina coil 1000 mm dia 10 metre openable length (total length 90 m), having 8m in length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4 m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in- charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5 mm thick) wire of high tensile strength of 165 kg/ sq mm with tape (0.52 mm thick) and weight 43.478 gm/ metre.	Mtr.	2931.00		
22	RW0215	Providing and fixing of barbed wire fitted and fixed with GI staple or GI binding wire tied to 6mm bars nubs fixed while casting the post (cost of RCC posts, struts, earthwork and concrete to be paid for separately)	Mtr.	32528.00		
23	CW0001	Providing and laying in position plain cement concrete excluding the cost of centering and shuttering - All work upto plinth level - 1:1:2(M25) (1 cement : 1 sand : 2 graded crushed rock 20 mm nominal size)	Cu.M	620.00		
24	AR7	Painting runway / Taxi Track / Apron marking with adequate no. of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-Charge including cleaning the surface of all dirt, scales, oil grease and other foreign material etc., and lining out complete. New work (Two or more coats)	Sq.M	4000.00		
25	AR8	Providing and laying in position Polysulphide sealant(pouring grade) of approved make conforming to BS-5212-1990 or IS: 11433-1995. in expansion/ construction/dummy joints including rounding off edges, applying 2 coats of approved primer compatible with the brand of Polysulphide and preparing the surface and applying masking tape along the edge of joint to prevent accidental spillage of sealant on top surface and to give neat finish to the sealant and removing the masking tape after application of sealant etc. complete as per direction of Engineer in-Charge & particular specifications. [Note: For purpose of payment, quantity (Length x Width x Depth) of Polysulphide sealant only will be measured.] unit cm3	Cu.cm	191000.00		
26	EW0196	Providing & laying sand bedding, including watering, ramming, dressing	Cu.M	810.00		
27	DP0022	Providing and laying moisture barrier using plastic sheeting underlay - 200 micro-metre	Sq.M	4300.00		
28	RC0090	Providing & fixing centering and shuttering (formwork), including strutting, propping etc. and removal of formwork - Foundation and plinth etc.	Sq.M	1038.30		
29	DD0055	Dismantling barbed wire, flexible wire including making rolls & stacking within 50m lead	Kg	751.40		
30	DD0056	Dismantling steel fence posts, struts & earth work\demolishing of concrete and stacking within 50m lead	Each	171.00		
31	DD0057	Dismantling R.C.C fence posts, struts including earth work\demolishing concrete footings, stacking, 50m lead	Each	171.00		
32	DD0006	Demolishing stone rubble masonry including stacking useful materials & disposal of rubbish within 50m lead - in cement mortar	Cu.M	54.30		
33	DD0010	Removing mortar from stones, cleaning stones and concrete articles, and arranging in stacks - in cement mortar	Cu.M	54.30		
34	EW0195	Filling of trenches, sides of foundations etc. in layers <200mm using selected excavated earth, ramming etc. within lead 50 m & lift 1.5m	Cu.M	75.40		
35	AR9	Providing and fixing of traditional bhutanese style GRC railing (Plain), O/a size 1760 x 1180 mm height as per Bhutan GRC standard design and sizes	Mtr.	250.00		
36	AR10	Providing and laying in position 25mm thick pre moulded polymer based (expanded polyethylene sheet) expansion joint filler sheets (Capcell D-100 or equivalent of density 100 kg/cum , +/- 10%) in expansion joint or rigid pavement as per manufacturer's specification and directions of Engineer in charge.	Sq.M	8.10		
37	RW0067	Construction of gabion wall as per drawings with dry stone masonry(hammer dressed facing) including excavation of foundation in all types of soils, sides and backfilling, delivery of machine woven gabion(Hexagonal mesh of size 90mmx100mm with a minimum of doubly twisted) with GI wire 3.25mm(10swg) dia, fixing of selvedged wire 4.06mm(8swg) dia, binding/lacing wire 2.64mm(12 swg) dia complete. Height upto 3 mts	Cu.M	410.00		
	A	Total				
	B	Construction of site office	L/S	1.00		
	C	Construction of site Laboratory	L/S	1.00		
	D	Construction of toilet	L/S	1.00		
		Total (A + B+ C+ D)				