Construction of pipe culvert at..... Sourse of fund:.....

The rates are taken from PWD(WB) schedule of rate for road & bridge works,building works of Midnapore west effect from 30/08/2018

Sl no	Description	No	Length	Bredth	Height	Quantity	Rate	Amount
1	Earthwork in excavation for foundation of structures upto 3 m depth as per drawing and technical specification Clause 1104 for Rural Roads of MORD including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.(Page 282 Item 11.01)	2	9.75	1.20	1.05	24.57 cum		
		2	2.20	1.20	1.05	5.54 cum		
	Wing wall	4	3.00	1.100	1.00	13.20 cum		
	Toe wall	2	12.00	0.75	0.75	13.50 cum		
						56.81 cum	**104.00**	**5909.00**
2	Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row Providing and laying reinforced cement concrete pipe NP3 with spigot socket for culverts on first class bedding of granular material in single row including fixing with cement mortar 1:2 as per Technical Specification Clause 1106 for Rural Roads of MORD.Rate analysis attached.	10	3.75	.....	.....	37.50 rmt		
						37.50 rmt	**2814.92**	**105560.00**
3	Sand filling in foundation trenches and at the back of abutments, wing-walls etc. with good local sand free from earth in layers not exceeding 15 cm. including inundating each layer by profuse water and poking and ramming layer by layer complete including supply of sand. Quality of sand is to be approved by the Engineer-in-charge.Rate analysis attached.							
	Inner portion	1	8.50	3.250	0.850	23.48 cum		
	less pipe	10x3.14x0.375x0.375x3.5				-15.45 cum		
		Total				**8.03 cum**	**626.23**	**5029.00**
4	Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-15 Grade.Using concrete mixer.(P=333,Item18.07 (a))Rate analysis attached.							
	bottom	2	9.75	1.20	0.15	3.51 cum		
		2	2.20	1.20	0.15	0.79 cum		
	Wing wall bottom	4	3.00	1.10	0.15	1.98 cum		
	Apron bottom	2	12.00	0.75	0.15	2.70 cum		
	(0.90+0.35)/2=0.625	2	9.00	0.625	0.90	10.13 cum		
	(0.90+0.35)/2=0.625	2	3.05	0.625	0.90	3.43 cum		
		2	9.00	0.300	0.85	4.59 cum		
		2	3.25	0.300	0.85	1.66 cum		
	Wing wall (0.90+0.35)/2=0.625 & (1.43+0.83)/2=1.14	4	3.00	0.625	1.14	8.55 cum		

	Toe wall (0.60+0.25)/2=0.425	2	12.00	0.425	0.60	6.12 cum		
	Front apron (12.0+9.0)/2=10.50	2	10.50	1.500	0.10	3.15 cum		
	Beddinfg of pipe	1	8.30	3.050	0.15	3.80 cum		
		Total				**50.40 cum**	**5278.82**	**266068.00**
5	Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-30 Grade.Using concrete mixer.(P=333,Item18.07 (d))Rate analysis attached.							
		1	9.00	3.75	0.2	6.75 cum		
						6.75 cum	**5858.18**	**39543.00**
6	Hire and labour charges for Shuttering with or without staging upto 4.0 m height using approved stout props with wooden planks/ply wood/steel sheet plate with required bracing for any kind of plain or reinforced concrete works in all sorts of minor structure including culvert, box culvert, cross-drain etc. The rate is inclusive of fitting, fixing and striking out after completion of work as per specification and direction. (b)Where staging is not required. [P-332,Item-18.05(b)]							
		2	9.75	.....	0.15	2.93 sqmt		
		2	7.55	.....	0.15	2.27 sqmt		
		2	4.40	.....	0.15	1.32 sqmt		
		2	2.20	.....	0.15	0.66 sqmt		
		4	9.00	.....	0.90	32.40 sqmt		
		4	3.75	.....	0.90	13.50 sqmt		
		4	9.00	.....	0.85	30.60 sqmt		
		4	3.40	.....	0.85	11.56 sqmt		
	Wing wall	8	3.15	.....	0.15	3.78 sqmt		
		4	1.00	.....	0.15	0.60 sqmt		
	(1.43+0.83)/2=1.14	8	3.00	.....	1.14	27.36 sqmt		
	(0.75+0.35)/2=0.55	4	0.55	.....	0.83	1.83 sqmt		
	toe wall	4	12.00	.....	0.15	7.20 sqmt		
		4	12.00	.....	0.60	28.80 sqmt		
	Slab	2	9.00	.....	0.20	3.60 sqmt		
		2	3.75	.....	0.20	1.50 sqmt		
						169.9 sqm	**214.00**	**36358.00**
7	Supplying fitting and fixing R.C. guard post 1.37m long with C.C. 1:2:4 with graded stone chips of 13.2mm down casting , curing complete including cost of providing 4nos.of 12mm dia. rod of length 1.54m as main reinforcement and 6 nos. of round shaped 8mm dia rods used as binders; the placing of the first binder should be at 75mm below the op finished surface and the other 5 nos of binders should be placed at 245mm c/c ; the guard post is of octagonal section with inscribed circle of dia 24cm at the base tapering to corresponding dimensions of 16cm at the top including two coats of painting with best quality synthetic enamel paint of approved make and grade to form 6 nos. horizontal alternate bands in white/tannery yellow and black to 90 cm length standing up above ground after mendinggood damages if any during striking off shuttering, making							

	hole in ground of 47cm dept and 30cm. minimum dia,							
	dia, fixing the guard posts in the same holes and repacking the earth properly so as to keep the guard posts standing properly erect in correct position true to line and length including carriage of R. C. Guard Post with due care to the site including loading into the truck and unloading at site complete in all respect. With Pakur variety stone chips (Page 272,Item no 8.16) Post 1.20mt C/C both line					**18.00 nos**	**773.00**	**13914.00**
8	Painting (one coat) guard posts with 6nos. of 16cm wide horizontal alternate band in different colours after the scrapping the surface free from old paint etc. as directed with best quality synthetic enamel paint of approved make and brand after fixing old existing guard post in correct position true to line and level with repacking the ground at base properly and mending good damages if necessary complete in all respect. (Page 272,Item no-8.17)					**18.00 nos**	**120.00**	**2160.00**
9	Supplying and spreading moorum (70%) and sand (30%) by volume to the required thk. In layers as specified and directed by the EIC stabilized the same by adding reuisite quantity of water to get OMC remixing in wet condition, wet rolling in power roller to the required compacted thickness to proper grade,camber, super elevation etc with power roller including proper tampering and curing the same for 5 days to have maximum dry density as specified and lighting,guarding,barricading and making adequate earthen bundth for protecting the edges etc.Rate analysis attached.	2	10.00	3.75	0.150	**11.25 cum**	**929.34**	**10455.00**
10	Water Bound Macadam Sub Base by consolidating Jhama metal / Laterite chelly or stone metal / shingles of specific size in hard crust to requisite thickness (measured after compaction) in layers including screening of metals etc. as necessary, hand packing, sweeping, watering and rolling in stages with power roller to proper line, grade and camber, lighting, guarding & barricading and making necessary earthen bundh of one metre width on each side where necessary to protect edges and preparing the bed by necessary cutting or filling and rolling all complete including the cost of all materials and hire and labour charges of all men and machineries and compacting to the required density, as per Clause 404 of Specifications for Road & Bridge Works of MoRT&H (5th Revision).Rate analysis attached.	2	10.00	3.75	0.250	**18.75 cum**	**1309.08**	**24545.00**
								5,09,541.00
							Add CGST 6%	30,572.00
							Add SGST 6%	30,572.00
							Cost of civil work	5,70,685.00
							Add Labour Cess @ 1.00%	5,707.00
							Total Project cost	5,76,392.00
							Add Contingency @ 3.00%	17,121.00
							Grand Total	**5,93,513.00**
Five Lakh Ninety Three Thousand Five Hundred Thirteen Only								

Rate Aaysis for Cocrete(Format C,1st Corrigendum,P-1)Case-II

Gradation of Stone Metal(Graded Aggregates)			20mm		10mm				
Cost of material from Pakur(Medinipur) P-226			1700.00		1569.00				
L+U(P-227,1.03(c))		57.75					L+U+S	77.00	L=40%
		Up to 30KM					L+U	57.75	U=35%
P-230,It-3							S	19.25	S=25%
Upto 5km		124.00	432.25		432.25		L=Loading		
5-10km	10.90 x 5	54.50					U=Unloading		
10-20km	10.10 x 10	101.00					S=Stacking		
20-50km	9.50 x 10	95.00							
		432.25	2132.25		2001.25				
Cement Concrete M-20 Grade									
Cost of 20 mm stone chips			0.9 cum	0.6	0.54	2132.25	1151.42	400kg Cement for M20 Ggrade(For Estimation purpose)From durability consideration, the value of minimum cement content and maximum water cement ratio to be considered in the mix design shall be as per the direction of the Engineer-inCharge.(P-333,Note-2)	
Cost of 10 mm stone chips			0.9 cum	0.4	0.36	2001.25	720.45		
P-211,Table No-3.2									
Cost of Cement(PPC/PSC/OPC43) P-218,It no-1			(5717/1000)x400				2286.80		
Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-20 Grade.Using concrete mixer.(P=333,Item18.07)							1470.00		
Total							**5628.67**		

Gradation of Stone Metal(Graded Aggregates)			20mm		10mm				
Cost of material from Pakur(Medinipur) P-226			1700.00		1569.00				
L+U(P-227,1.03(c))		57.75					L+U+S	77.00	L=40%
		Up to 30KM					L+U	57.75	U=35%
P-230,It-3							S	19.25	S=25%
Upto 5km		124.00	432.25		432.25		L=Loading		
5-10km	10.90X5	54.50					U=Unloading		
10-20km	10.10X10	101.00					S=Stacking		
20-50km	9.50 x 10	95.00							
		432.25	2132.25		2001.25				
Cement Concrete M-15 Grade									
Cost of 20 mm stone chips			0.9 cum	0.6	0.54	2132.25	1151.42	350kg Cement for M15 Ggrade(For Estimation purpose)From durability consideration, the value of minimum cement content and maximum water cement ratio to be considered in the mix design shall be as per the direction of the Engineer-inCharge.(P-333,Note-2)	
Cost of 10 mm stone chips			0.9 cum	0.4	0.36	2001.25	720.45		
P-211,Table No-3.2									
Cost of Cement(PPC/PSC/OPC43) P-218,It no-1			(5717/1000)x350				2000.95		
Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-15 Grade.Using concrete mixer. (P=333,Item18.07 (a))									

						Total	1406.00		
Total							**5278.82**		
Gradation of Stone Metal(Graded Aggregates)			20mm		10mm				
			1700.00		1569.00				
Cost of material from Pakur(Medinipur) P-226									
L+U(P-227,1.03(c))		57.75					L+U+S	77.00	L=40%
		Up to 30KM					L+U	57.75	U=35%
P-230,It-3							S	19.25	S=25%
Upto 5km		124.00	432.25		432.25		L=Loading		
5-10km	10.90X5	54.50					U=Unloading		
10-20km	10.10X10	101.00					S=Stacking		
20-50km	9.50X10	95.00							
		432.25	2132.25		2001.25				
Cement Concrete M-30 Grade									
Cost of 20 mm stone chips			0.9 cum	0.6	0.54	2132.25	1151.42	430kg Cement for M30 Ggrade(For Estimation purpose)From durability consideration, the value of minimum cement content and maximum water cement ratio to be considered in the mix design shall be as per the direction of the Engineer-inCharge.(P-333,Note-2)	
Cost of 10 mm stone chips			0.9 cum	0.4	0.36	2001.25	720.45		
P-211,Table No-3.2									
Cost of Cement(PPC/PSC/OPC43) P-218,It no-1			(5717/1000)x430				2458.31		
Providing and laying Design Mix concrete for plain / reinforced concrete work in any part of bridge (excluding bottom plugging) with coarse aggregates of appropriate nominal size and grading, fine aggregate (sand) conforming to proper grading zone, both of approved quality and cement, as necessary, including labour, cost and carriage of all materials and including preparation of design mix, approval of the same by the Engineer-in-Charge and cost for quality control, sampling, testing etc. all complete but excluding cost of labour and materials for formwork & reinforcement works.M-30 Grade.Using concrete mixer.(P=333,Item18.07(d))						Total	1528.00		
Total							**5858.18**		

NP-3 spigot pipe rate (600mm dia)

Page 223	a.600 dia NP-3 spigot pipe		2258.00 /mt
Page 282,Item no 11.03	Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row Providing and laying reinforced cement concrete pipe NP3 with spigot socket for culverts on first class bedding of granular material in single row including fixing with cement mortar 1:2 as per Technical Specification Clause 1106 for Rural Roads of MORD.		382.00 /mt
Page 230	Carriage of RCC pipes over pucca road upto 600 mm diameter.		
	Any distance up to 5 km		49.00
	Above 5 km up to 10K.M (Per K.M)	4.40 x 5	22.00
	Above 10 km up to 20K.M (Per K.M)	4.0 x 10	40.00
	Above 20 km up to 30K.M (Per K.M)	3.80 x 10	38.00
Page 222	Loading, unloading and stacking by Manual Means.R.C.C. pipes , C.I. pipes and unreinforced Cement pipes i) 600 mm dia		25.92
	Total cost of 600mm dia pipe per R.mt at site		2814.92 /mt

Fine Sand

Sl no	Description of Item	Fine sand
1	Cost at Site (Page 222)	381 rs/cum
2	Deduction for stagging 25%	-19.25 rs/cum
3	Compacting Factor(280,12.04,Note 2)	0.835
		433.23 rs/cum
4	Labour Charges P-286,12.04	193.00 rs/cum
	Total	**626.23 rs/cum**

L+U+S	77.00	L = 40%
L+U	57.75	U = 35%
S	19.25	S = 25%

Moorum

Sl no	Description of Item	Moorum		
1	Cost of Morrum at Quarry per cum (P-222, It-7)	117.00	rs/cum	L+U+S 62.00 L = 40% L+U 46.5 U = 35% 15.50 S = 25%
2	Carring upto 5KM	124.00	rs/cum	
3	Carring upto 5km to 10km @ 10.90/km	54.50	rs/cum	
4	Carring upto 11km to 20km @ 10.10/km	101.00	rs/cum	
5	Carring upto 20km to 35km @ 9.500/km	142.50	rs/cum	
6	Loading & Unloading 62.00 x 75%%	46.50	rs/cum	
7	Total cost of moorum per cum	585.50	rs/cum	S
8	Compacting Factor(280,12.04,Note 2)	0.670		
		877.81	rs/cum	
	Total	**877.81**	**rs/cum**	

Compaction by Moorum (70%) & Sand (30%)

a)	Moorum (P-3, Sl No. - 7)	0.7	1	877.81	Rs 614.47
b)	Sand (P-3, Sl no-3)	0.3	1	433.23	Rs 129.97
c)	Labour and other cost (P-242, sl no - 4.04 & 4.05)				Rs 184.90
	Total				Rs 929.34

Boulder

Sl no	Description of Item	Boulder		
1	Cost of boulder at Quarry per cum (P-222, It-6)	255.00	rs/cum	L+U+S 77.00 L = 40% L+U 57.75 U = 35% 19.25 S = 25%
2	Carring upto 5KM	124.00	rs/cum	
3	Carring upto 5km to 10km @ 10.90/km	54.50	rs/cum	
4	Carring upto 11km to 20km @ 10.10/km	101.00	rs/cum	
5	Carring upto 20km to 35km @ 9.500/km	142.50	rs/cum	
6	Loading & Unloading 62.00 x 75%%	46.50	rs/cum	
7	Total cost of bpulder per cum	723.50	rs/cum	
8	Compacting Factor(248,4.10,Note)	1.450	rs/cum	
		1049.08	rs/cum	
9	Labour Charges (P-248,Item no 4.10 ii)	260.00	rs/cum	
	Total	**1309.08**	**rs/cum**	