

MAHARASHTRA STATE WAREHOUSING CORPORATION

583/B, MARKET YARD, GULTEKADI, PUNE-411037

**STANDARD ESTIMATE FOR CONSTRUCTION OF 1/3000 MT CAP. PRE
ENGINEERED WH BLDG WITH ANCILLARY WORKS****Sub Work No:-II :-Bituminious Road over WBM road****Provision for BC soil****Rubble soling****2****Embakment****1****MEASUREMENT SHEET**

Item Nos & Description of Items						Unit		
	NO.S			LENGTH	BREDTH		DEPTH / HIGHT	TOTAL QUANTITY
	1	X	2					
2						3		

- 1 Excavation for roadway in earth, soil of all sorts, sand, gravel or soft murum including cum dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto ahead of 50m. and spreading for embankment or stacking as directed.

Road formation

long c/c	1	x	2	X	68.00	X	6.50	X	0.60	=	530.40
short c/c	1	x	2	X	30.00	X	6.00	X	0.60	=	216.00
Approch Road	0	x	1	X	15.00	X	12.00	X	0.60	=	0.00
Total										Net	746.40
										Say	746.00 cum

- 2 Excavation for roadway in hard murum and boulder including dressing section to the cum required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m.and spreading for embankment or stacking as directed.

Road formation

Provision											5.00
										Say	5.00 cum

- 3 Excavation for roadway in soft rock, including dressing section to the required grade, cum camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading or stacking

Road formation

Provision											5.00
										Total	5.00
										Net Say	5.00 cum

- 4 Excavation for roadway in hard rock by controlled blasting including dressing section to cum the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m.and spreading for embankment or stocking as directed.

Road formation

Provision											5.00
										Total	5.00
										Net Say	5.00 cum

- 5 Providing soling using 80 mm size trap metal in 15 cm. layer including filling voids with cum Crushed sand/grit, ramming, watering etc. complete.

Road formation

long c/c	1	x	2	X	68.00	X	6.50	X	0.23	=	203.32
short c/c	1	x	2	X	30.00	X	6.00	X	0.23	=	82.80
Approch Road	0										
		x	1	X	15.00	X	12.00	X	0.23	=	0.00
									Total	Net	286.12

Road area					1243.48					Say	286.00 cum
Sav					1244.00						

Supplying **80/60 mm trap stone** metal at the road side including conveying & stacking etc. complete. cum

6 long c/c	1	x	2	X	68	X	6.5	X	0.15	=	132.60
short c/c	1	x	2	X	30	X	6	X	0.15	=	54.00
Approch Road	0	x	1	X	15	X	12	X	0.15	=	0.00
									Total		186.60
Add 32. % Voids											59.71
									Say		246.31
									Say		247.00 cum

Supplying **40 mm trap stone** metal at the road side including conveying & stacking etc. complete. cum

7 long c/c	1	x	2	X	68	X	6.5	X	0.10	=	88.40
short c/c	1	x	2	X	30	X	6	X	0.10	=	36.00
Approch Road	0	x	1	X	15	X	12	X	0.10	=	0.00
											124.40
Add for Compaction factor 32 %											39.81
									Total		164.21
									Say		165.00 cum

- 8 **Spreading 80 mm trap stone metal** including sectioning as directed etc. complete. cum

Qty. as per item 6										=	247.00
									Total		247.00
									Say		247.00 cum

- 9 **Spreading 40 mm trape stone metal** including sectioning as directed etc. complete. cum

Qty. as per item 7										=	165.00
									Total		165.00
									Say		165.00 cum

- 14 Supplying hard murum/ kankar at the road site, including conveying and stacking cum complete.

long c/c	1	x	2	X	68.00	X	6.50	X	0.05	=	44.20
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short	c/c	1	x	2	X	30.00	X	6.00	X	0.05	=	18.00	
Approch Road		0	x	1	X	15.00	X	16.00	X	0.05	=	0.00	
For side width													
long	c/c	1	x	2	X	68.00	X	0.50	X	0.25	=	17.00	
short	c/c	1	x	2	X	30.00	X	0.50	X	0.25	=	7.50	
Approch Road		0	x	1	X	15.00	X	0.50	X	0.25	=	0.00	
Total												86.70	
add for compaction												20%	17.34
												Net	104.04
												Say	104.00 cum

15	Spreading hard murum/ soft murrum/ gravel or kankar for side width complete	cum
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Qty. as per item 10

	=	104.00	
Total		104.00	
Say		104.00	cum

Compacting oversize metal layer with H. M. with power roller including artificial watering & necy. Labour etc. sqm
10 complete.

For Rubble soiling	1	X 1244.00	=	1244
For 80mm	1	X 1244.00	=	1244
For 40mm	1	X 1244.00	=	1244
			Total	3732.00
			Say	3732.00

13	Providing and constructing 75 mm. thick Modified Penetration Macadam (MPM) road surface including all materials, preparing the existing road surface, spreading 40 mm. stone metal layers 100% crusher broken metal with conical crusher plant heating and spraying the bitumen of specified grade @ 2 Kilogram/Square Metre, spreading 12 mm.size chips compacting with three wheel static roller having weight 8 to 10 MT. to achieve the desired degree of compaction as per Technical Specification Clause 506 etc. complete. (VG-30 bulk bitumen)	Sqm
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1.00	x	1244.00	x	=	1244.00	
				Total	=	1244.00
				Say	=	1244.00 Sqm

14	Providing and applying tack coat on the prepared surface heating by fumes in Boiler and spraying bitumen set footed in bitumen boiler on B.T. surface 2.5 kg/10 sqm.(VG-30 bulk bitumen rates are considered to arrive at rates)	Sqm
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New Road

Long Side	1	x	1	X	68.00	X	6.50	=	442.00
Long Side	1	x	1	X	68.00	X	6.50	=	442.00
Short Side	1	x	1	X	30.00	X	6.00	=	180.00
Short Side	1	x	1	X	30.00	X	6.00	=	180.00

Total = 1244.00

Say = **1244.00** Sqm

- 18 Compacting the hard murum side widths including laying in layers on each side with sqm vibratory roller including artificial watering etc. complete

Side width

long c/c	1	x	1	X	68.00	X	0.50	=	34.00
short c/c	1	x	2	X	30.00	X	0.50	=	30.00
Approch Road	0	x	1	X	15.00	X	0.50	=	0.00
Total								Net	64.00
								Say	64.00 sqm

- 19 Open Graded Premix Surfacing- Providing and Laying OGC 20 mm thickness composed sq,m of 13.2 mm to 5.6 mm aggregates premixed with bituminous binder transported to site with VTS , laid over a previously repared surface, finished to the required grade, level, alignment, and rolling to achieve the desired compaction but xcluding prime / tack and Seal coat. For Bitumen of pecified grade--USING drum mix type hot mix plant with SCADA, Paver and Vibratory roller (Over MPM Surface) (VG-30 bulk bitumen rates are considered to arrive at rates)

$$1.00 \times 1244.00 \times = 1244.00$$

$$\text{Total} = 1244.00$$

$$\text{Say} = \mathbf{1244.00} \text{ sqm}$$

- 20 9 MM SEAL COAT: Providing and laying of Type A 9mm premix seal coat with HMP of Sqm aproprate capacity crushed stone chiping 6.7 mm size and penetration bitumen of specified grade @ 1.2kg/Sq.m, preparing existing road surface by mechanical means, spreading chips and rolling, by static roller having weight 8 to 10 MT. etc.complete.(VG-30 bulk bitumen rates are considered to arrive at rates)

$$1.00 \times 1244.00 \times = 1244.00$$

$$\text{Total} = 1244.00$$

$$\text{Say} = \mathbf{1244.00} \text{ sqm}$$

- 21 Providing & fixing R. C. C. 1:2:4 guard stones as per type design including painting Nos numbering fixing in std. Size C. C. 1:4:8 block complete.

long c/c	1	x	2	X	31.00	=	62.00
short c/c	1	x	2	X	5.00	=	10.00
Approch Road	1	x	1	X	4.00	=	4.00
Total							76.00
Say							76.00 Nos

PART II :- CROSS DRAINAGE WORKS

- 22 Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to adistance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means

cum

$$\text{C D Works} \quad 1 \times 1 \times 10.00 \times 1.50 \times 0.15 = 2.25 \text{ cum}$$

Open U C R drain	1	x	1	x	125	x	1.05	x	0.10	=	13.13
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.15	=	0.45
Width of C D work	1	x	1	x	9	x	1.50	x	0.10	=	1.35

Total 17.18 cum
Say **17.00** cum

- 23 Excavation for foundation in hard murum including removing the excavated material upto distance of 50 metres beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m) By

Mechanical Means cum

C D Works	1	x	1	x	10.00	x	1.50	x	0.15	=	2.25 cum
Open U C R drain	1	x	1	x	15.0	x	1.05	x	0.15	=	2.36
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.15	=	0.45
										Total	5.06 cum
										Say	5.00 cum

- 24 Excavation for foundation in Hard murum including removing the excavated material upto a distance of 50 metres beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 to 3.0m.)

By Mechanical Means cum

C D Works	1	x	1	x	10.00	x	1.50	x	0.10	=	1.50 cum
Open U C R drain	1	x	1	x	15.00	x	1.05	x	0.10	=	1.58
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.10	=	0.30
										Total	3.38 cum
										Say	3.00 cum

- 25 Excavation for foundation in Hard rock by chiselling, wedging, line drilling, etc. including trimming and levelling the bed, removing the excavated material upto a distance of 50 metres beyond the building area stacking as directed, dewatering and back filling with available earth/ murum watering, ramming etc. complete. (Lift upto 1.5 m). By Mechanical Means cum

= 1.00
Total Net 1.00
 Say **1.00** cum

- 26 Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing etc. complete. With fine aggregate (Natural Sand)

cum

C D Works	1	x	1	x	10.00	x	1.50	x	0.10	=	1.50 cum
Open U C R drain	1	x	1	x	15.00	x	1.05	x	0.10	=	1.58
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.10	=	0.30
										Total	3.38 cum
										Say	3.00 cum

27 Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)

cum

Provision	1	x	1	x	1.00	x	1.00	x	1.00	=	1.00
										Total	1.00 cum
										Say	1.00 cum

28 Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually , striking joints on un exposed faces and watering etc.complete.(Natural Sand)

cum

C D Works	1 x	2 x	10.00 x	0.445 x	0.35	3.12
Open U C R drain	1 x	2 x	15.00 x	0.45 x	0.35	4.73
App. C D work Head wall	1 x	2 x	2.00 x	0.45 x	1.2	2.16
					Total	10.00 cum
					Say	10.00 cum

29 Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually , striking joints on un exposed faces and watering etc.complete.(Crushed sand VSI Grade)

cum

Provision	1 x	1 x	1.00 x	1 x	1	1.00
				Total		1.00 cum
				Say		1.00 cum

30 Providing and fixing in position TMT - FE - 500 bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels, copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete.

MT

at 160 Kgs / cum	3.0	160		0.48 MT
			Total	0.48 MT
			Say	0.50 MT

31 Providing and laying Cast in situ/Ready Mix cement concrete M-30 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand)

cum

1	1	10	1.3	0.2	2.60
				Total	2.60 cum
				Say	3.00 cum

- 32 Providing and laying Cast in situ/Ready Mix cement concrete M-30 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)

Provision	0.5	1.0	1	1	1	0.50
					Total	0.50 cum
					Say	0.50 cum

- 33 Providing cement plaster 20 mm thick in two coats in C. M. 1 : 4 with slurry finish to concrete or brick surface or U. C. R surface in all positions including scaffolding & curing smooth cement slurry finish of 1.5 mm thickness etc. complete as directed. [Bd. L 4 / 368] (Natural Sand)

C D Works	1 x	2 x	10.00 x	1.2		24.00 sqm
App. C D work Head wall	1 x	2 x	2.0 x	0.65		2.60
	2 x	2 x	0.45 x	0.1	=	0.18
					Total	26.78 sqm
					Say	27.00 sqm

- 34 Providing cement plaster 20 mm thick in two coats in C. M. 1 : 4 with slurry finish to concrete or brick surface or U. C. R surface in all positions including scaffolding & curing smooth cement slurry finish of 1.5 mm thickness etc. complete as directed. (Crushed sand VSI Grade)

						sqm
Provision	1 x	1 x	1 x	1	=	1.00
					Total	1.00 sqm
					Say	1.00 sqm

- 35 Providing flush grooved pointing with cement mortar 1:3 for brick work including scaffolding and curing etc. complete.

						sqm
	1 x	2 x	2.00 x	0.65 x	.=	2.60 sqm
	2 x	1 x	2.00 x	0.45 x	.=	1.80
					Total	4.40 sqm
					Say	4.00 sqm

- 36 Providing and laying cement concrete pipe of IS 458:2003 NP-2 class of 600mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.

						Rmt
I S N P III Class pipe	1 x	1 x	10.00		=	10.00 Rmt
					Total	10.00 Rmt
					Say	10.00 Rmt

- 37 Supplying & spreading Hard mumrum for cushioning of R C C pipe including watering rammi ng & leveling etc complete.

						cum
I S N P III Class pipe	1 x	1 x	10.00 x	1.5 x	0.9 =	13.50 cum
					Net	13.50 cum

Say 14.00 cu m

- 38 Providing and casting in situ / ready mix PCC M15 grade of trap metal for coping to head walls / parapet including centering, form work, compaction and curing etc. complete. (Natural Sand)

cum

App. C D work Head wall	2 x	2 x	2.00 x	0.45 x	0.1 =	0.36 cum
Above C.C. pipe	1 x	1 x	10.00 x	1.5 x	0.3 =	4.50
				Total		4.86 cum
				Say		5.00 cu m

- 39 Providing and casting in situ / ready mix PCC M15 grade of trap metal for coping to head walls / parapet including centering, form work, compaction and curing etc. complete. (Crushed sand VSI Grade)

cum

Provision	1 x	1 x	1.00 x	1 x	1 =	1.00
				Total		1.00 cum
				Say		1.00 cu m

- 40 Providing earth work in embankment with approved materials obtained from departmental land upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller to achieve not less than 97 % of standard proctor density etc. complete. (Material obtained from departmental Land)

cum

Provision						10.00
				Total		10.00 cum
				Say		10.00 cum

- 41 Providing earth work in embankment with approved materials obtained from other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller with V-Sat attachment to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from Other sources)

cum

Road formation

long c/c	1	x	1	X	68.00	X	6.50	X	0.45 =	198.90
short c/c	1	x	2	X	30.00	X	6.00	X	0.45 =	162.00
Approch Road	1	x	1	X	15.00	X	12.00	X	0.45 =	81.00
								Net		441.90
								Say		442.00 cum

- 42 Conveying materials obtained from road cutting including all lifts, laying in layers of 20cm to 30cm. breaking clods, dressing to the required lines, curves, grades and section, watering and compacting to not less than 97% of standard Proctor density for a lead of over 50m.to 300m. inclusive from the site of excavation to the site of deposition as directed.

cum

Provision						10.00
				Total		10.00
				Say		10.00 cum

- 43 Conveying the materials obtained from excavation including all lifts, laying in layers, breaking clods, dressing to the required lines, curves, grades and section for all leads & lifts from the site of excavation to the site of deposition as directed. (Rd. 18 / P. 197)

Qty. as per item No- 1

	746.00 cum
Total	746.00
Say	746.00 cum

Jr.Engineer
MSWC,Aurangabad

Dy.Manager (Engg.)
MSWC,Aurangabad