

MAHARASHTRA STATE WAREHOUSING CORPORATION

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

**STANDARD ESTIMATE FOR CONSTRUCTION OF 1/1080 MT CAPACITY PRE
ENGINEERED WH BLDG WITH ANCILLARY WORKS**

Sub Work No:-III :-Bituminious Road

MEASUREMENT SHEET

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

New Road									
Long Side	1	x	1	X	41.19	X	6.50	=	267.75
Long Side	1	x	1	X	41.19	X	6.50	=	267.75
short Side	1	x	1	X	25.39	X	6.00	=	152.35
Short Side	1	x	1	X	25.39	X	6.00	=	152.35

- 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 outside the complex including all leads & lifts.

Road formation

New Road

Long Side	1	x	1	X	41.19	X	6.50	X	0.60	=	160.65
Long Side	1	x	1	X	41.19	X	6.50	X	0.60	=	160.65
Short Side	1	x	1	X	25.39	X	6.00	X	0.60	=	91.41
Short Side	1	x	1	X	25.39	X	6.00	X	0.60	=	91.41
Approach Road	1	X	1	X	2.74	X	6.50	X	0.60	=	10.68

Total Net 514.80

Say 515.00 cum

- 2 Picking the road surface including sectioning etc. complete (WBM surface.) Sqm

Existing Road

Long Side A- B, D-E	0	x	0	X	0.00	X	0.00	=	0.00
Short Side A-D	0	x	0	X	0.00	X	0.00	=	0.00

Total Net 0.00

Total Net 0.00

Say 0.00 Sqm

- 3 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.

New Road

Long Side	0	x	1	X	41.19	X	6.50	X	0.40	=	0.00
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Long Side	0	x	1	X	41.19	X	6.50	X	0.40	=	0.00
Short Side	0	x	2	X	25.39	X	6.00	X	0.40	=	0.00
Short Side	0	x	3	X	25.39	X	6.00	X	0.40	=	0.00

Total	Net	1.00
Total	Net	1.00
	Say	1.00 cum

- 4 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											1.00
						Total	Net				1.00
							Say				1.00 cum

- 5 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											1.00
						Total	Net				1.00
							Say				1.00 cum

- 6 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

New Road

Long Side	1	x	1	X	41.19	X	6.50	X	0.23	=	61.58
Long Side	1	x	1	X	41.19	X	6.50	X	0.23	=	61.58
Long Side	1	x	1	X	25.39	X	6.00	X	0.23	=	35.04
Short Side	1	x	1	X	25.39	X	6.00	X	0.23	=	35.04

Total	Net	193.25
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Say 193.00 cum

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

New Road

Long Side	1	x	1	X	41.19	X	6.50	X	0.15	=	40.16
Long Side	1	x	1	X	41.19	X	6.50	X	0.15	=	40.16
Short Side	1	x	1	X	25.39	X	6.00	X	0.15	=	22.85
Short Side	1	x	1	X	25.39	X	6.00	X	0.15	=	22.85

Total	126.03
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Add 32. % Voids 40.33

Say 166.36

Say 167.00 cum

Supplying **40 mm trap stone** metal at the road side including conveying & stacking etc. cum 8 complete.

New Road

Long Side	1	x	1	X	41.19	X	6.50	X	0.10	=	26.77
Long Side	1	x	1	X	41.19	X	6.50	X	0.10	=	26.77
short Side	1	x	1	X	25.39	X	6.00	X	0.10	=	15.24
Short Side	1	x	1	X	25.39	X	6.00	X	0.10	=	15.24

Total 84.02

Add for Compaction factor
32 %

26.89
Total 110.91
Say **111.00** cum

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

Qty. as per item 6 = **167.00**
Total 167.00
Say **167.00** cum

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

Qty. as per item 7 = **111.00**
Total 111.00
Say **111.00** cum

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

Long Side	1	x	2		x	41.19	x	6.5	x	0.05	=	26.77
Short Side	1	x	2		x	25.39	x	6	x	0.05	=	15.24

For side Shoulder

Long Side	1	x	1	X	41.19	X	0.50	X	0.25	=	5.15
Long Side	1	x	1	X	41.19	X	0.50	X	0.25	=	5.15
Short Side	1	x	1	X	25.39	X	0.50	X	0.25	=	3.17
Short Side	1	x	1	X	25.39	X	0.50	X	0.25	=	3.17

Total 58.66

add for compaction 20% 11.73

Net 70.39

Say 70.00 cum

12 Spreading hard murum/ soft murrum/ gravel or kankar for side width complete cum

Qty. as per item 10 = 70.00
Total 70.00
Say **70.00** cum

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

For Rubble soiling	1	X	840.20	=	840.2
For 80mm	1	X	840.20	=	840.2
For 40mm	1	X	840.20	=	840.2
Total					2520.60
Say					2520.60

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

For side Shoulder

Long Side I-J	1	x	1	X	41.19	X	0.50	=	20.60	
Long Side G-H	1	x	1	X	41.19	X	0.50	=	20.60	
Long Side B-C, E-F	1	x	2	X	25.39	X	0.50	=	25.39	
Short Side C-F, G-I, H-J	1	x	2	X	25.39	X	0.50	=	25.39	
									Total	91.98
									Net Say	92.00 sqm

- 15 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

New Road

Long Side	1	x	1	X	41.19	X	6.50	=	267.75	
Long Side	1	x	1	X	41.19	X	6.50	=	267.75	
Short Side	1	x	1	X	25.39	X	6.00	=	152.35	
Short Side	1	x	1	X	25.39	X	6.00	=	152.35	
									=	840.20
									Total =	840.20
									Say =	841.00 Sqm

- 16 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

New Road

Long Side	1	x	1	X	41.19	X	6.50	=	267.75	
Long Side	1	x	1	X	41.19	X	6.50	=	267.75	
Short Side	1	x	1	X	25.39	X	6.00	=	152.35	
Short Side	1	x	1	X	25.39	X	6.00	=	152.35	
									=	840.20
									Total =	840.20
									Say =	841.00 Sqm

- 17 Open Graded Premix Surfacing- Providing and Laying OGC 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates premixed with bituminous binder @ 1.56 Kg/Sqm transported to site with VTS, laid over a previously prepared surface, finished to the required grade, level, alignment, and rolling to achieve the desired compaction but excluding prime / tack and Seal coat. For Bitumen of specified grade--USING drum mix type hot mix plant, Paver and Vibratory roller (Over MPM Surface) (VG-30 bulk Grade 60/70) sq,m

New road	1.00	x	840.20	x	=	840.20	
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Total = 840.20
Say = **841.00** sqm

- 18 9 MM SEAL COAT: Providing and laying of Type A 9 mm premix seal coat with HMP of Sqm appropriate capacity crushed stone chipping 6.7 mm size and penetration bitumen of specified grade @ 1.2 kg/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)

$$1.00 \times 840.20 \times = 840.20$$

Total = 840.20
Say = **841.00** sqm

- 19 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.

Lumpsum considered 75.00

Total 75.00
Say **75.00** Nos

PART II :- CROSS DRAINAGE WORKS

- 20 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

C D Works	1	x	2	x	10.00	x	1.50	x	0.75	=	22.50 cum
C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.15	=	0.45

Total 22.95 cum
Say **23.00** cum

- 21 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	2	x	10.00	x	1.50	x	0.15	=	4.50 cum
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.15	=	0.45

Total 4.95 cum
Say **5.00** cum

- 22 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	2	x	10.00	x	1.50	x	0.10	=	3.00 cum
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App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.10	=	0.30	
											Total	3.30 cum
											Say	3.00 cum

- 23 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

											=	1.00
											Total	1.00
											Net Say	1.00 cum

- 24 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
C D Works	1	x	2	x	10.00	x	1.50	x	0.10	=	3.00	cum
App. C D work Head wall	1	x	2	x	2.00	x	0.75	x	0.10	=	0.30	
										Total	3.30	cum
										Say	4.00	cum

- 25 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)

C D Works	2 x	2 x	10.00 x	0.445 x	0.35	6.23
App. C D work Head wall	1 x	2 x	2.00 x	0.45 x	1.2	2.16
					Total	8.39 cum
					Say	9.00 cum

- 26 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, 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 210Kgs / CuM	6.0		1		210							1.26 MT
											Total	1.26 MT
											Say	1.30 MT

- 27 Providing and laying Cast in situ/Ready Mix cement concrete M-25 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 fine aggregate (Crushed sand VSI Grade)

Slab	1.00	2.00	10.00	1.30	0.20	5.20
					Total	5.20 cum
					Say	6.00 cum

- 28 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
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

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

						sqm
	2 x	2 x	2.00 x	0.65 x	.=	5.20 sqm
	2 x	2 x	2.00 x	0.45 x	.=	3.60
					Total	8.80 sqm
					Say	9.00 sqm

- 30 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

- 31 Supplying & spreading Hard mumrum for cushioning of R C C pipe including watering ramming & 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

- 32 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
App. C D work Head wall	1 x	2 x	2.00 x	0.45 x	0.1 =	0.18 cum
Above C.C. pipe	1 x	1 x	10.00 x	1.5 x	0.15 =	2.25
					Total	2.43 cum
					Say	3.00 cu m

- 33 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

- 34 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

New Road

Long Side I-J	1	x	1	X	41.19	X	6.50	X	0.45	=	120.49
Long Side G-H	1	x	1	X	41.19	X	6.50	X	0.45	=	120.49
Long Side B-C, E-F	1	x	2	X	25.39	X	6.00	X	0.45	=	137.12
Short Side C-F, G-I, H-J	1	x	3	X	25.39	X	6.00	X	0.45	=	205.68

Net 583.77

Say 584.00 cum

- 35 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

Total 10.00

Say 10.00 cum

- 36 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.

Qty. as per item No- 1

515.00 cum

Total 515.00

Say 515.00 cum

Jr.Engineer
MSWC-Amravati

Dy.Manager (Engg.)
MSWC-Amravati