

UPGRADING OF LOW VOLUME GRAVEL ROADS WITH THE USE OF BITUMEN STABILISED MATERIAL (BSM BASE LAYER) FOR THE ROADS AND STORMWATER MAINTENANCE DEPARTMENT IN THE SOUHT REGION OF ETHEKWINI MUNICIPALITY FOR 36 MONTHS

SECTION 1 PRELIMINARY AND GENERAL

PART AA PRELIMINARIES

Item	Clause	Description	Unit	Quantity	Rate	Amount
		SERVICES				
1	B12.02	(a) Construction of new survey beacons or for existing beacons to be protected and for construction setting-out with level control and monitoring	PC Sum	75000	1.00	75,000.00
2	B12.02	(b) Handling costs and profit in respect of item B12.02(a)	%	75000		

TOTAL CARRIED TO SECTION 1 SUMMARY: PRELIMINARY AND GENERAL

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PART AB GENERAL SPECIFICATIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Contractor's general obligations				
1	B13.01	(a) Fixed Obligations for Upgrading Gravel Roads	sum	1		
2	B13.01	(b) Contractors superintendence including transport and communication	months	36		
		Health and Safety				
3	B13.02	(a) Fixed obligation for preparation of risk assessment, H&S, etc.	sum	1		
4	B13.02	(b) Submission of Health and Safety file	sum	1		
5	B13.02	(c) Time related obligation for updating risk assessment, safe work procedures, etc.	months	36		
		Remuneration for Community Liaison Officer				
6	B13.03	(a) Monthly payment	PC Sum	100000	1.00	100,000.00
		ACCOMODATION OF TRAFFIC				
		The provision of temporary traffic control facilities (except traffic lights and amber flicker lights for the supervisory staff) for the following road categories :				
7	B15.01	(a) Category D : Residential Streets	months	36		

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SECTION 2 ROAD ASPHALT AND ASPHALT BERMS

PART ED ROAD ASPHALT

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>Supply and Lay Asphalt Wearing Course Layer</u>				
1	ED8.2	(i) 25mm Mix 1 using 50/70 pen. Bitumen	t	5322		
		<u>(b) By hand from Commercial Sources</u>				
2	ED8.2	(i) 25mm Mix 1 using 50/70 pen. Bitumen	t	150		
		<u>Tack Coat</u>				
3	ED8.4	Spray surface using 60% anionic stable grade emulsion @ 0,3 l/m2	m2	110000		
		<u>Testing</u>				
4	AA.ED9.2	Density testing of Asphalt using Nuclear Gauge	no.	40		
5	AA.ED14	Establishment of paving equipment within 1km radius	no.	30		
		<u>SPEED HUMPS</u>				
6	AA.ED.16	Construction of Asphalt Speed Humps as per drawing 43924A/1 and drawing 46223	m	200		

TOTAL CARRIED TO SECTION 2 SUMMARY: ROAD ASPHALT AND ASPHALT BERMS

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PART EF KERBS AND HAUNCHES

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>Asphalt Berms Placed where specified by the Engineer</u>				
1	24.01	(i) Mix A 50/70 penetration grade bitumen, as specified by the Engineer	m	5000		
		<u>Prime and Tack Coats</u>				
2	24.03	(b) Tack coat (Grade 60 anionic bitumen emulsion)	m2	1500		

TOTAL CARRIED TO SECTION 2 SUMMARY: ROAD ASPHALT AND ASPHALT BERMS

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SECTION 3 GUARDRAILS, ROAD SIGNS AND ROAD MARKINGS.

PART EH STEEL GUARDRAILS & CONC. MEDIAN BARRIERS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>Guardrails on timber posts:</u>				
1	54.01	(a) Galvanised	m	500		
2	54.03	Extra over items 54.01 for horizontally curved guardrails factory bent to a radius less than 45m	m	50		
		<u>End treatments</u>				
3	54.04	(a) End wings	no.	60		
4	54.06	Reflective plates	no.	300		

TOTAL CARRIED TO SECTION 3 SUMMARY: GUARDRAILS, ROAD SIGNS AND ROAD MARKINGS.

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PART TA ROAD SIGNS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>(a)Control Signs:</u>				
1	PS.TA.7	(i)R1 - STOP sign:600mm	no.	40		
		<u>(b)Prohibition Signs</u>				
2	PS.TA.7	(i)R202-3T: 600mm	no.	40		
		<u>(c) Warning Signs</u>				
3	PS.TA.7	(i)W332 with supplementary speed sign	no.	150		
		<u>Supply of Posts</u>				
4	PS.TA.8	(i)Supply of creosote post 100-125mm diameter of length 3600mm	no.	35		
5	PS.TA.8	(ii)Supply of creosote post 100-125mm diameter of length 3900mm	no.	250		
		<u>Supply of Fastners</u>				
6	PS.TA.10	(i)Supply of uni-strut clamps (incl. S\S 304 M8 bolt, nut & washer)	no.	90		

TOTAL CARRIED TO SECTION 3 SUMMARY: GUARDRAILS, ROAD SIGNS AND ROAD MARKINGS.

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PART TB ROAD MARKINGS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>Retro-reflective road marking paint:</u>				
		<u>(a) White lines</u>				
1	57.02	(i) 100 mm wide	m	8500		
2	57.02	(ii) 300 mm wide	m	250		

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Part Continued PART TB ROAD MARKINGS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>(d) White lettering and symbols</u>				
3	57.02	Lettering, 2.5m high	m2	200		

TOTAL CARRIED TO SECTION 3 SUMMARY: GUARDRAILS, ROAD SIGNS AND ROAD MARKINGS.

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SECTION 4 CONCRETE WORKS

PART C CONCRETE WORK

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS.C.8.4	Cast insitu concrete lining (20 Mpa/19mm) v-drains (Class 2 surface finish to cast insitu concrete v-drains)	m3	500		
2	C.8.2	Steel reinforcement (welded steel mesh Ref 193)	m2	1157		
3	C.8.3	Formwork to cast insitu concrete lining for the open drains (class 2 surface finish) to side with formwork of the internal and external faces (each side measured)	m2	333		
4	PS.C.8.5	Expansion joints for concrete lined open v-drains	m	463		

TOTAL CARRIED TO SECTION 4 SUMMARY: CONCRETE WORKS

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SECTION 5 CONCRETE PAVEMENTS

PART EM CONCRETE SURFACE TO ROADS

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	7100	Supply and lay 30/19 concrete in 2.5x2.5 panels as instructed by Engineer. Longitudinal joints to be dowelled with Y10(deformed bars), 500mm in length @ 750mm intervals. The thickness of the slab is to be 140mm or as instructed by the engineer	m3	194		

TOTAL CARRIED TO SECTION 5 SUMMARY: CONCRETE PAVEMENTS

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SECTION 6 INSITU COLD RECYCLING & STATIC PLANT COLD RECYCLING

PART PC STABILISATION OF GRAVEL BASE

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>INSITU COLD RECYCLING WORK</u> <u>New pavement layers constructed by insitu recycling</u>				
1	B10111.4	(b) base layers (all materials), compacted to the specified density, stabilized (i) 100mm to 150mm	m3	14900		
2	B10111.7	Extra over item on reclaimed asphalt material from municipal storage/source in excess of 10km radius	m3 * km	2000		
3	B10111.8	Levelling, compacting and preparing RAP material	m3	400		
		<u>Stabilizing agent:</u> <u>(a) Cementitious stabilising agents and active fillers</u>				
4	B10111.6	(ii) Hydrated road lime	t	304		
		<u>(b) Bituminous stabilizing agents</u>				
5	B10111.6	(ii) Foam bitumen using 70/100 penetration grade bitumen	t	616		
		<u>Application of a fog spray of diluted emulsion</u>				
6	B10111.8	(c.) 16% Cationic Spray grade emulsion	l	13000		
7	B10111.9	Establishment of (approved) insitu recycler beyond 2 km	no.	50		
		<u>Testing</u>				
8	B81.04	(a) For the design of Bitumen Stabilised Material(BSM)	PC Sum	75000	1.00	75,000.00
9	B81.04	(b) Contractor's handling costs, profit and all other charges in respect of item 8 above	%	75000		
		<u>STATIC PLANT RECYCLING WORK</u>				
10	B10212.02	Processing/Mixing Bitumen Stabilised Reclaimed Asphalt in a Static Plant recycler - KMA or similar.	m3	500		
		<u>Establishment of:</u>				
11	B10212.07	(a) Static Plant recycler - KMA or similar inclusive of mechanical screen(26.5/19mm screen).	no.	2		

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Part Continued PART PC STABILISATION OF GRAVEL BASE

Item	Clause	Description	Unit	Quantity	Rate	Amount
12	B10212.07	(f) Extra Over item (a) for overhaul of material in excess of 10Km radius (ordinary overhaul)	m3 * km	5000		
13	B10212.08	Spread,level, shape, water and final compaction of BSM (RAP)	m3	600		

TOTAL CARRIED TO SECTION 6 SUMMARY: INSITU COLD RECYCLING STATIC PLANT COLD RECYC

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SECTION 7 DAYWORKS

PART GM GRAVEL ROAD MAINTENANCE

Item	Clause	Description	Unit	Quantity	Rate	Amount
		<u>Personnel during normal working hours:</u>				
1	C1	(a) Unskilled labour	hr	20		
2	C1	(b) Semi-skilled labour	hr	10		
3	C1	(c) Skilled labour	hr	10		
4	C1	(e) Flag-person	hr	20		
		<u>(a) Tipper Trucks:</u>				
5	C2	(i) 6 m ³ capacity	hr	10		
6	C2	(ii) 10 m ³ capacity	hr	10		
7	C2	(b) Water truck (7 000 litre)	hr	10		
8	C2	(c) TLB	hr	10		
9	C2	(d) Front end loader	hr	10		
10	C2	(e) Grader CAT (Cat 140G or similar)	hr	10		
11	C2	(f) Vibratory roller (Bomag 212 or similar)	hr	10		
12	C2	(g) Pneumatic tyred roller (14 t)	hr	10		
13	C2	(h) Screening Plant	hr	10		
14	C2	(i) Excavator	hr	10		
15	C2	(J) lowbed establishment for plant that cannot be driven on open road, which will require the Engineer's approval and must be substantiated with an invoice	no.	8		
		<u>Materials:</u>				
16	C3	(a) Procurement of materials	PC Sum	8000	1.00	8,000.00
17	C3	(b) Contractor's handling costs, profit and all other charges in respect of item 16 above	%	8000		
18	C3	Asphalt Paver	hr	10		

TOTAL CARRIED TO SECTION 7 SUMMARY: DAYWORKS

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SUMMARY OF BILL OF QUANTITIES

1	PRELIMINARY AND GENERAL		R	
	AA PRELIMINARIES	R		
	AB GENERAL SPECIFICATIONS	R		
2	ROAD ASPHALT AND ASPHALT BERMS		R	
	ED ROAD ASPHALT	R		
	EF KERBS AND HAUNCHES	R		
3	GUARDRAILS, ROAD SIGNS AND ROAD MARKINGS.		R	
	EH STEEL GUARDRAILS & CONC. MEDIAN BARRIERS	R		
	TA ROAD SIGNS	R		
	TB ROAD MARKINGS	R		
4	CONCRETE WORKS		R	
	C CONCRETE WORK	R		
5	CONCRETE PAVEMENTS		R	
	EM CONCRETE SURFACE TO ROADS	R		
6	INSITU COLD RECYCLING & STATIC PLANT COLD RECYCLING		R	
	PC STABILISATION OF GRAVEL BASE	R		
7	DAYWORKS		R	
	GM GRAVEL ROAD MAINTENANCE	R		
SUB TOTAL			R	
ADD VAT (15%) - (only if a registered VAT Vendor)			R	
TOTAL CARRIED TO FORM OF TENDER			R	