

PROPOSED CONSTRUCTION OF OXIDATION PONDS AND ASSOCIATED CIVIL WORKS						
AT KEMRI ALUPE						
BILL NO. 1 FOUL DRAINAGE OXIDATION PONDS						
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					SHS	CTS
	<u>SITE CLEARENCE</u>					
A	Clear site of all bushes, grown weeds and trees and clear the stumps and the like and dispose as directed by Engineer	SM	12,000			
	<u>SECONDARY PONDS (1NO)</u>					
B	Excavate for oxiadtion pond starting from ground level not exceeding 2.5m deep and dispose excavated materials as directed by the Engineer average depth 2.0m	CM	9,625			
C	Compact the base of the pond to the satisfaction by the engineer	SM	4,813			
D	Provide, lay and compact 100mm thick approved murrum bed to bottom and on sloping sides of the pond	SM	5,525			
E	Provide lay and compact 50mm thick conc. (1:3:6) haunching as bed to the base and sides of theponds	SM	5,525			
F	Provide lay and joint special precast purpose made concrete paving slabs to sides and bottom of the ponds (1:2 cement mortar)	SM	5,525			
	<u>TERTIARY PONDS (1NO)</u>					
G	Excavate for oxiadtion pond starting from ground level not exceeding 2.5m deep and dispose excavated materials as directed by the Engineer average depth 2.0m	CM	9,625			
H	Compact the base of the pond to the satisfaction by the engineer	SM	4,813			
J	Provide, lay and compact 100mm thick approved murrum bed to bottom and on sloping sides of the pond	SM	5,525			
K	Provide lay and compact 50mm thick conc. (1:3:6) haunching as bed to the base and sides of theponds	SM	5,525			
L	Provide lay and joint special precast purpose made concrete paving slabs to sides and bottom of the ponds (1:2 cement mortar)	SM	5,525			
	<u>SANDRIES</u>					
M	Allow for casting concrete edging (1:3:6) to edges of paving slabs around the ponds	CM	114			
TOTAL CARRIED TO COLLECTION PAGE 5						

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ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS	AMOUNT	
					SHS	CTS
<u>DISTRIBUTION MANHOLES (4NO).</u>						
A	Excavate pit for standard manhole depth not exceeding 1.5m av. Depth 1.5m	CM	42			
B	Extra over excavation in rock class 1	CM	1			
C	Return fill & ram	CM	25			
D	Cart away surplus material	CM	17			
E	Provide material and construct distribution MH to detail (50)5351	NO	3			
<u>SOAK PIT (50)5345 8NO.</u>						
F	Excavation pit for soak pit n.e. 1.5m deep	CM	45			
G	Ditto between 1.5m and 3.0m deep	CM	6			
H	Ditto between 3.0m and 4.5m deep	CM	6			
J	Ditto between 4.5m and 6.m deep	CM	6			
K	Return fill and rum	CM	39			
L	Cart away away surplus material	CM	24			
M	Provide materials & erect 150mm thick circular masonry wall in cement motar 1:4	SM	21			
N	Provide lay & vibrate conc. 1:3:6 to 150mm thick base	CM	3			
P	Provide lay & vibrate conc. 1:2:4 to cover slab 150mm thick	CM	3			
Q	Provide & fix 600x450mm MD MH cover & frame	NO	3			
R	Provide formwork to soffit of slab	SM	3			
S	Ditto to curved edge 150-225mm high	LM	15			
T	Provide cut bend & fix in wall dia. 8mm HT reinforcing bar	KG	78			
U	Provide approved hardcore fill to soak pit	CM	21			
V	Make or leave rebated opening 600x450mm	NO	1			
W	Keep excavations free from general waters		ITEM			
TOTAL CARRIED TO COLLECTION PAGE 5						

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ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					SHS	CTS
	<u>FRENCH DRAINS (50)5344</u>					
A	Excavate trench for french drain starting from ground level not exceeding 1.5m deep, trim & shape as in detail (50)5344 av. depth 1.25m	LM	160			
B	Provide & lay in trench dia. 160mm agricultural pipe as in detail (50)5344	LM	160			
C	Provide & lay in trench crushed stone 20 -60mm thick as in detail (50)5344	LM	160			
D	Provide lay & compact in trench 200mm thick approved murram	LM	160			
E	Return fill & ram	CM	50			
F	Cart away surplus material as directed by the Engineer	CM	90			
	<u>SOAKAGE AREA</u>					
G	Prepare ground by digging to loosen the ground ave. depth 200mm and remove all unwanted materials and cart away as directed by the Engineer	SM	700			
H	Provide manure and mix with red soil 150mm deep all around soakage area	SM	700			
J	Provide & plant approved grass runners 300mm centres both ways & maintain until well established	SM	700			
TOTAL CARRIED TO COLLECTION PAGE 5						

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ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					SHS	CTS
	<u>STORM WATER DRAINAGE AROUND THE PONDS</u>					
A	Excavate trench for 750x355mm external dimension Pcc IBD not exceeding 1.5m (average depth 1.0m) including trimming sides to slope and disposal of surplus material to detail (50) 5329 'A'.	LM	600			
B	Provide, lay and compact 100mm thick approved murrum bed and on sloping sides of the IBD to detail (50) 5329'A'	SM	1,700			
C	Provide, lay and joint 750x355x600mm external dimensions Pcc IBD to detail (50) 5327.	LM	600			
D	Extra over Item M for one side slab on each side to detail (50) 5329'A'.	LM	300			
E	Extra over Item M for two sides slabs on each side to detail (50) 5329 'A'.	LM	200			
F	Extra over Item M for three sides slabs on each side to detail (50) 5329 'A'.	LM	100			
	<u>FENCE</u>					
G	Provide material and erect chainlink fence 2100mm high consisting of 150x150mm tapered reinforced concrete 1:2:4 (20mm) posts at 3.0m centres reinforced with and including 8 NO 6mm MS steel rods and 6mm MS stirrups at 300mm centres with bottom end of post set in and including plain concrete 1:3:6 (40) base size 450x450x600mm including excavation 600mm deep. Include for 3No strands of No 12gauge galvanized steel chainlink wire with No 18SMG annealed iron iron wire all to a height of 2100mm and the whole stretched tight and even including levelling the ground as necessary	LM	750			
H	Extra over for straining posts supported by 2No. Precast RC 1:2:4 (20) raking strut size 150x150x2500mm with top and bolted to fence with and including 12mm dia. Galvanized steel bolt and bottom and of post set in and including plain concrete 1:3:6 (40) base size 400x400x600mm including excavation 600mm deep and post fitted with 3No 160x6mm galvanized hook bolts for straining wires	NO	28			
TOTAL CARRIED TO COLLECTION PAGE 5						

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ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					SHS	CTS
A	Extra over for double conner post each with raking strut and 3No. 160x8mm galvanized hook bolts staining wires height of 1800mm <u>Ground beam</u> <u>Concrete</u>	NO	4			
B	50mm thick mass concrete class Q (1:3:6) to bottoms of foundations <u>In situ concrete: reinforced: class 20 / (20mm): vibrated</u>	SM	225			
C	Beam <u>Reinforcement(provisional)</u> <u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>	CM	75			
D	12mm bars	KG	3,000			
E	8mm bars	KG	2,100			
F	<u>Sawn formwork to insitu concrete as described:-</u> To sides of ground beam	SM	990			
G	<u>GATE</u> Provide material and erect single steel gate gauge 14 on 3.0m opening, by 2.1m high fabricated of 50mm dia ms tube frame, 75mm dia side posts, 10mm dia vertical rails spaced at 100mm centres and concrete base for post 400x400x600mm 1:3:6 (15) and excavations, deop bolsts, lock fixing and aluminium painging all to detail (50)5368	NO	1			
TOTAL CARRIED TO COLLECTION PAGE 3 BELOW						
<u>COLLECTION</u>						
1	TOTAL CARRIED FROM CIV 1					
2	TOTAL CARRIED FROM CIV 2					
3	TOTAL CARRIED FROM CIV 3					
4	TOTAL CARRIED FROM CIV 4					
5	TOTAL CARRIED FROM CIV 5					
TOTAL CARRIED TO SUMMARY PAGE						

**PROPOSED CONSTRUCTION OF OXIDATION PONDS AND ASSOCIATED CIVIL WORKS
AT KEMRI ALUPE
BILL NO. 2 SUMMARY PAGE**

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					SHS	CTS
	<u>SUMMARY PAGE</u>					
1	BILL 1					
	SUB-TOTAL					
2	CONTIGENCIES				1,000,000	00
	TOTAL					
TOTAL FOR CIVIL WORKS CARRIED TO GRAND SUMMARY PAGE						