COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
18 + 700.000	20.000	2.00	2.00	40.00	20.00	24.55	491.00	531.00
18 + 720.000	20.000	2.00	2.00	40.00	20.20	20.10	402.00	442.00
18 + 736.257	16.257	2.00	2.00	32.51	22.20	21.20	344.65	377.16
18 + 740.000	3.743	2.00	2.00	7.49	22.70	22.45	84.03	91.52
18 + 760.000	20.000	2.00	2.00	40.00	26.60	24.65	493.00	533.00
18 + 780.000	20.000	2.00	2.00	40.00	28.20	27.40	548.00	588.00
18 + 800.000	20.000	2.00	2.00	40.00	31.20	29.70	594.00	634.00
18 + 820.000	20.000	2.00	2.00	40.00	33.10	32.15	643.00	683.00
18 + 840.000	20.000	2.00	2.00	40.00	31.90	32.50	650.00	690.00
18 + 860.000	20.000	2.00	2.00	40.00	32.20	32.05	641.00	681.00
18 + 880.000	20.000	2.00	2.00	40.00	30.30	31.25	625.00	665.00
18 + 900.000	20.000	2.00	2.00	40.00	26.10	28.20	564.00	604.00
18 + 920.000	20.000	2.00	2.00	40.00	24.50	25.30	506.00	546.00
18 + 940.000	20.000	5.60	3.80	76.00	14.20	19.35	387.00	463.00
18 + 960.000	20.000	6.00	5.80	116.00	9.70	11.95	239.00	355.00
18 + 980.000	20.000	8.30	7.15	143.00	7.90	8.80	176.00	319.00
19 + 0.000	20.000	11.50	9.90	198.00	2.80	5.35	107.00	305.00
19 + 20.000	20.000	16.40	13.95	279.00	2.30	2.55	51.00	330.00
19 + 40.000	20.000	20.00	18.20	364.00	4.90	3.60	72.00	436.00
19 + 51.992	11.992	18.90	19.45	233.24	2.70	3.80	45.57	278.81
19 + 60.000	8.008	19.30	19.10	152.95	1.70	2.20	17.62	170.57
19 + 80.000	20.000	21.50	20.40	408.00	2.10	1.90	38.00	446.00
19 + 100.000	20.000	22.70	22.10	442.00	3.20	2.65	53.00	495.00
19 + 120.000	20.000	22.50	22.60	452.00	1.80	2.50	50.00	502.00
19 + 140.000	20.000	22.90	22.70	454.00	1.50	1.65	33.00	487.00
19 + 160.000	20.000	21.80	22.35	447.00	1.80	1.65	33.00	480.00
19 + 180.000	20.000	19.20	20.50	410.00	2.40	2.10	42.00	452.00
19 + 200.000	20.000	17.40	18.30	366.00	3.40	2.90	58.00	424.00
19 + 220.000	20.000	11.30	14.35	287.00	3.20	3.30	66.00	353.00
19 + 240.000	20.000	8.70	10.00	200.00	6.60	4.90	98.00	298.00
19 + 260.000	20.000	2.10	5.40	108.00	12.20	9.40	188.00	296.00
19 + 280.000	20.000	2.00	2.05	41.00	21.00	16.60	332.00	373.00
19 + 300.000	20.000	2.00	2.00	40.00	26.30	23.65	473.00	513.00
19 + 320.000	20.000	2.00	2.00	40.00	19.60	22.95	459.00	499.00
19 + 340.000	20.000	2.00	2.00	40.00	19.70	19.65	393.00	433.00
19 + 360.000	20.000	2.80	2.40	48.00	10.60	15.15	303.00	351.00
19 + 380.000	20.000	8.10	5.45	109.00	10.20	10.40	208.00	317.00
19 + 400.000	20.000	13.00	10.55	211.00	6.00	8.10	162.00	373.00
19 + 420.000	20.000	17.40	15.20	304.00	3.30	4.65	93.00	397.00
19 + 440.000	20.000	19.10	18.25	365.00	3.50	3.40	68.00	433.00
19 + 460.000	20.000	21.70	20.40	408.00	3.50	3.50	70.00	478.00
19 + 480.000	20.000	22.40	22.05	441.00	3.30	3.40	68.00	509.00
19 + 500.000	20.000	32.40	27.40	548.00	11.00	7.15	143.00	691.00
19 + 501.992	1.992	32.60	32.50	64.74	10.90	10.95	21.81	86.55
19 + 520.000	18.008	33.00	32.80	590.66	11.90	11.40	205.29	795.95
19 + 540.000	20.000	31.50	32.25	645.00	8.90	10.40	208.00	853.00
19 + 560.000	20.000	29.80	30.65	613.00	5.40	7.15	143.00	756.00
19 + 580.000	20.000	30.20	30.00	600.00	1.90	3.65	73.00	673.00
19 + 600.000	20.000	44.30	37.25	745.00	1.40	1.65	33.00	778.00
19 + 620.000	20.000	26.20	35.25	705.00	1.70	1.55	31.00	736.00
19 + 640.000	20.000	24.20	25.20	504.00	2.40	2.05	41.00	545.00
19 + 660.000	20.000	24.10	24.15	483.00	2.90	2.65	53.00	536.00
19 + 665.167	5.167	22.70	23.40	120.91	2.50	2.70	13.95	134.86
19 + 680.000	14.833	21.70	22.20	329.29	3.20	2.85	42.27	371.57
19 + 700.000	20.000	19.40	20.55	411.00	2.60	2.90	58.00	469.00
19 + 720.000	20.000	12.30	15.85	317.00	2.30	2.45	49.00	366.00
19 + 740.000	20.000	7.00	9.65	193.00	7.50	4.90	98.00	291.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
19 + 760.000	20.000	2.00	4.50	90.00	14.90	11.20	224.00	314.00
19 + 780.000	20.000	2.00	2.00	40.00	19.70	17.30	346.00	386.00
19 + 800.000	20.000	2.00	2.00	40.00	24.00	21.85	437.00	477.00
19 + 820.000	20.000	2.00	2.00	40.00	29.30	26.65	533.00	573.00
19 + 840.000	20.000	2.00	2.00	40.00	31.40	30.35	607.00	647.00
19 + 860.000	20.000	2.00	2.00	40.00	33.30	32.35	647.00	687.00
19 + 873.500	13.500	2.00	2.00	27.00	33.90	33.60	453.60	480.60
19 + 880.000	6.500	2.00	2.00	13.00	32.80	33.35	216.78	229.78
19 + 900.000	20.000	2.00	2.00	40.00	30.80	31.80	636.00	676.00
19 + 920.000	20.000	2.00	2.00	40.00	29.20	30.00	600.00	640.00
19 + 940.000	20.000	2.00	2.00	40.00	28.40	28.80	576.00	616.00
19 + 960.000	20.000	2.00	2.00	40.00	25.10	26.75	535.00	575.00
19 + 980.000	20.000	2.00	2.00	40.00	24.10	24.60	492.00	532.00
20 + 0.000	20.000	2.00	2.00	40.00	23.00	23.55	471.00	511.00
20 + 20.000	20.000	2.00	2.00	40.00	21.60	22.30	446.00	486.00
20 + 40.000	20.000	2.00	2.00	40.00	20.40	21.00	420.00	460.00
20 + 60.000	20.000	2.00	2.00	40.00	18.40	19.40	388.00	428.00
20 + 80.000	20.000	2.00	2.00	40.00	15.30	16.85	337.00	377.00
20 + 100.000	20.000	2.00	2.00	40.00	9.90	12.60	252.00	292.00
20 + 120.000	20.000	4.50	3.25	65.00	7.50	8.70	174.00	239.00
20 + 140.000	20.000	7.20	5.85	117.00	5.70	6.60	132.00	249.00
20 + 160.000	20.000	10.90	9.05	181.00	2.50	4.10	82.00	263.00
20 + 180.000	20.000	12.80	11.85	237.00	2.60	2.55	51.00	288.00
20 + 200.000	20.000	15.50	14.15	283.00	3.50	3.05	61.00	344.00
20 + 220.000	20.000	17.20	16.35	327.00	4.40	3.95	79.00	406.00
20 + 240.000	20.000	17.70	17.45	349.00	4.40	4.40	88.00	437.00
20 + 260.000	20.000	17.60	17.65	353.00	3.90	4.15	83.00	436.00
20 + 280.000	20.000	17.00	17.30	346.00	3.70	3.80	76.00	422.00
20 + 300.000	20.000	16.10	16.55	331.00	3.60	3.65	73.00	404.00
20 + 320.000	20.000	15.80	15.95	319.00	3.60	3.60	72.00	391.00
20 + 340.000	20.000	16.70	16.25	325.00	3.60	3.60	72.00	397.00
20 + 360.000	20.000	16.70	16.70	334.00	4.00	3.80	76.00	410.00
20 + 380.000	20.000	16.20	16.45	329.00	3.30	3.65	73.00	402.00
20 + 400.000	20.000	15.60	15.90	318.00	4.30	3.80	76.00	394.00
20 + 420.000	20.000	14.70	15.15	303.00	3.90	4.10	82.00	385.00
20 + 440.000	20.000	15.00	14.85	297.00	3.90	3.90	78.00	375.00
20 + 460.000	20.000	14.30	14.65	293.00	3.90	3.90	78.00	371.00
20 + 480.000	20.000	14.50	14.40	288.00	4.00	3.95	79.00	367.00
20 + 500.000	20.000	14.70	14.60	292.00	3.70	3.85	77.00	369.00
20 + 520.000	20.000	15.60	15.15	303.00	4.10	3.90	78.00	381.00
20 + 540.000	20.000	16.20	15.90	318.00	4.00	4.05	81.00	399.00
20 + 560.000	20.000	17.10	16.65	333.00	3.90	3.95	79.00	412.00
20 + 580.000	20.000	17.00	17.05	341.00	3.70	3.80	76.00	417.00
20 + 600.000	20.000	18.70	17.85	357.00	4.60	4.15	83.00	440.00
20 + 620.000	20.000	17.90	18.30	366.00	3.80	4.20	84.00	450.00
20 + 640.000	20.000	15.20	16.55	331.00	2.00	2.90	58.00	389.00
20 + 660.000	20.000	18.20	16.70	334.00	1.90	1.95	39.00	373.00
20 + 676.232	16.232	19.70	18.95	307.60	1.80	1.85	30.03	337.63
20 + 680.000	3.768	20.30	20.00	75.36	2.00	1.90	7.16	82.52
20 + 700.000	20.000	21.80	21.05	421.00	1.90	1.95	39.00	460.00
20 + 720.000	20.000	24.10	22.95	459.00	2.30	2.10	42.00	501.00
20 + 740.000	20.000	26.20	25.15	503.00	2.50	2.40	48.00	551.00
20 + 760.000	20.000	19.10	22.65	453.00	0.00	1.25	25.00	478.00
20 + 780.000	20.000	28.90	24.00	480.00	1.10	0.55	11.00	491.00
20 + 800.000	20.000	31.90	30.40	608.00	0.90	1.00	20.00	628.00
20 + 820.000	20.000	33.60	32.75	655.00	1.00	0.95	19.00	674.00
20 + 840.000	20.000	35.60	34.60	692.00	1.00	1.00	20.00	712.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
20 + 860.000	20.000	38.00	36.80	736.00	0.90	0.95	19.00	755.00
20 + 880.000	20.000	40.30	39.15	783.00	1.00	0.95	19.00	802.00
20 + 884.565	4.565	40.80	40.55	185.11	1.00	1.00	4.57	189.68
20 + 900.000	15.435	39.90	40.35	622.80	0.90	0.95	14.66	637.47
20 + 920.000	20.000	45.00	42.45	849.00	3.00	1.95	39.00	888.00
20 + 940.000	20.000	44.10	44.55	891.00	6.70	4.85	97.00	988.00
20 + 960.000	20.000	41.70	42.90	858.00	7.80	7.25	145.00	1003.00
20 + 980.000	20.000	37.50	39.60	792.00	4.40	6.10	122.00	914.00
21 + 0.000	20.000	35.10	36.30	726.00	3.60	4.00	80.00	806.00
21 + 20.000	20.000	30.60	32.85	657.00	1.90	2.75	55.00	712.00
21 + 40.000	20.000	20.50	25.55	511.00	2.60	2.25	45.00	556.00
21 + 60.000	20.000	12.70	16.60	332.00	2.80	2.70	54.00	386.00
21 + 80.000	20.000	4.80	8.75	175.00	7.80	5.30	106.00	281.00
21 + 92.898	12.898	2.00	3.40	43.85	13.80	10.80	139.30	183.15
21 + 100.000	7.102	2.00	2.00	14.20	15.70	14.75	104.75	118.96
21 + 120.000	20.000	2.00	2.00	40.00	20.10	17.90	358.00	398.00
21 + 140.000	20.000	2.00	2.00	40.00	23.80	21.95	439.00	479.00
21 + 160.000	20.000	2.00	2.00	40.00	28.80	26.30	526.00	566.00
21 + 180.000	20.000	2.00	2.00	40.00	31.90	30.35	607.00	647.00
21 + 200.000	20.000	2.00	2.00	40.00	35.90	33.90	678.00	718.00
21 + 220.000	20.000	2.00	2.00	40.00	36.60	36.25	725.00	765.00
21 + 240.000	20.000	2.00	2.00	40.00	38.80	37.70	754.00	794.00
21 + 260.000	20.000	2.00	2.00	40.00	40.90	39.85	797.00	837.00
21 + 280.000	20.000	2.00	2.00	40.00	41.60	41.25	825.00	865.00
21 + 300.000	20.000	2.00	2.00	40.00	41.90	41.75	835.00	875.00
21 + 320.000	20.000	2.00	2.00	40.00	40.10	41.00	820.00	860.00
21 + 340.000	20.000	2.00	2.00	40.00	39.60	39.85	797.00	837.00
21 + 360.000	20.000	2.00	2.00	40.00	39.60	39.60	792.00	832.00
21 + 380.000	20.000	2.00	2.00	40.00	38.90	39.25	785.00	825.00
21 + 400.000	20.000	2.00	2.00	40.00	37.30	38.10	762.00	802.00
21 + 420.000	20.000	2.00	2.00	40.00	37.00	37.15	743.00	783.00
21 + 440.000	20.000	2.00	2.00	40.00	36.30	36.65	733.00	773.00
21 + 460.000	20.000	2.00	2.00	40.00	37.50	36.90	738.00	778.00
21 + 480.000	20.000	2.00	2.00	40.00	35.70	36.60	732.00	772.00
21 + 500.000	20.000	2.00	2.00	40.00	34.70	35.20	704.00	744.00
21 + 520.000	20.000	2.00	2.00	40.00	34.10	34.40	688.00	728.00
21 + 540.000	20.000	2.00	2.00	40.00	32.00	33.05	661.00	701.00
21 + 560.000	20.000	2.00	2.00	40.00	28.10	30.05	601.00	641.00
21 + 563.141	3.141	2.00	2.00	6.28	26.90	27.50	86.38	92.66
21 + 580.000	16.859	2.00	2.00	33.72	25.30	26.10	440.02	473.74
21 + 600.000	20.000	5.20	3.60	72.00	22.50	23.90	478.00	550.00
21 + 620.000	20.000	5.20	5.20	104.00	17.80	20.15	403.00	507.00
21 + 640.000	20.000	6.40	5.80	116.00	11.40	14.60	292.00	408.00
21 + 660.000	20.000	4.20	5.30	106.00	5.20	8.30	166.00	272.00
21 + 680.000	20.000	3.90	4.05	81.00	5.10	5.15	103.00	184.00
21 + 700.000	20.000	3.10	3.50	70.00	5.60	5.35	107.00	177.00
21 + 720.000	20.000	2.00	2.55	51.00	9.50	7.55	151.00	202.00
21 + 740.000	20.000	2.00	2.00	40.00	11.10	10.30	206.00	246.00
21 + 760.000	20.000	2.00	2.00	40.00	13.10	12.10	242.00	282.00
21 + 771.474	11.474	2.00	2.00	22.95	14.20	13.65	156.62	179.57
21 + 780.000	8.526	2.00	2.00	17.05	15.00	14.60	124.48	141.53
21 + 800.000	20.000	2.00	2.00	40.00	15.50	15.25	305.00	345.00
21 + 820.000	20.000	2.00	2.00	40.00	17.20	16.35	327.00	367.00
21 + 840.000	20.000	2.00	2.00	40.00	19.00	18.10	362.00	402.00
21 + 860.000	20.000	2.00	2.00	40.00	20.70	19.85	397.00	437.00
21 + 880.000	20.000	2.00	2.00	40.00	22.70	21.70	434.00	474.00
21 + 900.000	20.000	2.00	2.00	40.00	25.50	24.10	482.00	522.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
21 + 920.000	20.000	2.00	2.00	40.00	27.00	26.25	525.00	565.00
21 + 931.474	11.474	2.00	2.00	22.95	27.90	27.45	314.96	337.91
21 + 940.000	8.526	2.00	2.00	17.05	29.00	28.45	242.56	259.62
21 + 960.000	20.000	2.00	2.00	40.00	31.70	30.35	607.00	647.00
21 + 980.000	20.000	2.00	2.00	40.00	32.90	32.30	646.00	686.00
22 + 0.000	20.000	2.00	2.00	40.00	35.10	34.00	680.00	720.00
22 + 20.000	20.000	2.00	2.00	40.00	36.60	35.85	717.00	757.00
22 + 40.000	20.000	2.00	2.00	40.00	37.50	37.05	741.00	781.00
22 + 60.000	20.000	2.00	2.00	40.00	38.10	37.80	756.00	796.00
22 + 80.000	20.000	2.00	2.00	40.00	37.70	37.90	758.00	798.00
22 + 100.000	20.000	2.00	2.00	40.00	36.40	37.05	741.00	781.00
22 + 103.231	3.231	2.00	2.00	6.46	36.10	36.25	117.12	123.59
22 + 120.000	16.769	2.00	2.00	33.54	34.20	35.15	589.43	622.97
22 + 140.000	20.000	2.00	2.00	40.00	31.50	32.85	657.00	697.00
22 + 160.000	20.000	2.00	2.00	40.00	28.60	30.05	601.00	641.00
22 + 180.000	20.000	2.00	2.00	40.00	25.00	26.80	536.00	576.00
22 + 200.000	20.000	2.00	2.00	40.00	21.70	23.35	467.00	507.00
22 + 220.000	20.000	2.00	2.00	40.00	18.20	19.95	399.00	439.00
22 + 240.000	20.000	3.10	2.55	51.00	17.90	18.05	361.00	412.00
22 + 260.000	20.000	3.10	3.10	62.00	17.50	17.70	354.00	416.00
22 + 263.231	3.231	2.00	2.55	8.24	19.50	18.50	59.77	68.01
22 + 280.000	16.769	2.00	2.00	33.54	19.40	19.45	326.16	359.70
22 + 300.000	20.000	4.30	3.15	63.00	17.90	18.65	373.00	436.00
22 + 320.000	20.000	2.00	3.15	63.00	21.00	19.45	389.00	452.00
22 + 340.000	20.000	2.00	2.00	40.00	19.10	20.05	401.00	441.00
22 + 360.000	20.000	5.20	3.60	72.00	16.00	17.55	351.00	423.00
22 + 380.000	20.000	2.00	3.60	72.00	25.80	20.90	418.00	490.00
22 + 400.000	20.000	3.40	2.70	54.00	7.70	16.75	335.00	389.00
22 + 420.000	20.000	5.80	4.60	92.00	3.20	5.45	109.00	201.00
22 + 440.000	20.000	7.00	6.40	128.00	3.20	3.20	64.00	192.00
22 + 460.000	20.000	7.10	7.05	141.00	3.30	3.25	65.00	206.00
22 + 480.000	20.000	7.10	7.10	142.00	3.30	3.30	66.00	208.00
22 + 500.000	20.000	4.20	5.65	113.00	7.40	5.35	107.00	220.00
22 + 520.000	20.000	3.60	3.90	78.00	8.00	7.70	154.00	232.00
22 + 540.000	20.000	3.20	3.40	68.00	8.70	8.35	167.00	235.00
22 + 560.000	20.000	2.00	2.60	52.00	12.90	10.80	216.00	268.00
22 + 580.000	20.000	2.00	2.00	40.00	14.60	13.75	275.00	315.00
22 + 600.000	20.000	2.00	2.00	40.00	16.20	15.40	308.00	348.00
22 + 620.000	20.000	2.00	2.00	40.00	17.10	16.65	333.00	373.00
22 + 640.000	20.000	2.00	2.00	40.00	17.70	17.40	348.00	388.00
22 + 660.000	20.000	2.00	2.00	40.00	17.90	17.80	356.00	396.00
22 + 680.000	20.000	2.00	2.00	40.00	17.90	17.90	358.00	398.00
22 + 700.000	20.000	2.00	2.00	40.00	17.00	17.45	349.00	389.00
22 + 720.000	20.000	2.00	2.00	40.00	16.00	16.50	330.00	370.00
22 + 740.000	20.000	2.00	2.00	40.00	14.70	15.35	307.00	347.00
22 + 760.000	20.000	2.00	2.00	40.00	12.40	13.55	271.00	311.00
22 + 780.000	20.000	2.00	2.00	40.00	11.10	11.75	235.00	275.00
22 + 800.000	20.000	5.10	3.55	71.00	2.80	6.95	139.00	210.00
22 + 820.000	20.000	8.30	6.70	134.00	2.70	2.75	55.00	189.00
22 + 840.000	20.000	12.00	10.15	203.00	2.70	2.70	54.00	257.00
22 + 860.000	20.000	15.00	13.50	270.00	3.00	2.85	57.00	327.00
22 + 880.000	20.000	16.30	15.65	313.00	2.70	2.85	57.00	370.00
22 + 900.000	20.000	19.60	17.95	359.00	3.20	2.95	59.00	418.00
22 + 920.000	20.000	21.70	20.65	413.00	2.70	2.95	59.00	472.00
22 + 940.000	20.000	25.00	23.35	467.00	2.80	2.75	55.00	522.00
22 + 960.000	20.000	27.80	26.40	528.00	2.80	2.80	56.00	584.00
22 + 979.000	19.000	28.50	28.15	534.85	2.40	2.60	49.40	584.25

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
23 + 0.000	21.000	31.90	30.20	634.20	3.20	2.80	58.80	693.00
23 + 20.000	20.000	34.40	33.15	663.00	3.70	3.45	69.00	732.00
23 + 40.000	20.000	34.10	34.25	685.00	2.50	3.10	62.00	747.00
23 + 60.000	20.000	32.90	33.50	670.00	1.70	2.10	42.00	712.00
23 + 80.000	20.000	33.90	33.40	668.00	2.60	2.15	43.00	711.00
23 + 100.000	20.000	34.10	34.00	680.00	2.70	2.65	53.00	733.00
23 + 120.000	20.000	34.50	34.30	686.00	3.80	3.25	65.00	751.00
23 + 129.105	9.105	34.80	34.65	315.49	5.80	4.80	43.70	359.19
23 + 140.000	10.895	34.10	34.45	375.33	3.60	4.70	51.21	426.54
23 + 160.000	20.000	34.30	34.20	684.00	4.90	4.25	85.00	769.00
23 + 180.000	20.000	34.40	34.35	687.00	7.20	6.05	121.00	808.00
23 + 200.000	20.000	28.60	31.50	630.00	6.00	6.60	132.00	762.00
23 + 220.000	20.000	26.90	27.75	555.00	6.90	6.45	129.00	684.00
23 + 240.000	20.000	23.90	25.40	508.00	6.90	6.90	138.00	646.00
23 + 260.000	20.000	22.40	23.15	463.00	5.50	6.20	124.00	587.00
23 + 280.000	20.000	21.70	22.05	441.00	5.00	5.25	105.00	546.00
23 + 300.000	20.000	22.30	22.00	440.00	4.30	4.65	93.00	533.00
23 + 320.000	20.000	22.60	22.45	449.00	3.80	4.05	81.00	530.00
23 + 340.000	20.000	22.00	22.30	446.00	3.40	3.60	72.00	518.00
23 + 360.000	20.000	20.60	21.30	426.00	2.90	3.15	63.00	489.00
23 + 380.000	20.000	19.10	19.85	397.00	2.40	2.65	53.00	450.00
23 + 400.000	20.000	16.20	17.65	353.00	0.00	1.20	24.00	377.00
23 + 420.000	20.000	11.80	14.00	280.00	0.00	0.00	0.00	280.00
23 + 440.000	20.000	9.60	10.70	214.00	0.00	0.00	0.00	214.00
23 + 460.000	20.000	10.10	9.85	197.00	2.90	1.45	29.00	226.00
23 + 480.000	20.000	7.10	8.60	172.00	7.40	5.15	103.00	275.00
23 + 500.000	20.000	7.60	7.35	147.00	10.00	8.70	174.00	321.00
23 + 520.000	20.000	2.00	4.80	96.00	19.50	14.75	295.00	391.00
23 + 540.000	20.000	2.00	2.00	40.00	23.90	21.70	434.00	474.00
23 + 560.000	20.000	2.00	2.00	40.00	26.40	25.15	503.00	543.00
23 + 580.000	20.000	2.00	2.00	40.00	27.40	26.90	538.00	578.00
23 + 600.000	20.000	2.00	2.00	40.00	20.50	23.95	479.00	519.00
23 + 620.000	20.000	2.00	2.00	40.00	11.20	15.85	317.00	357.00
23 + 640.000	20.000	8.00	5.00	100.00	0.00	5.60	112.00	212.00
23 + 652.373	12.373	20.60	14.30	176.93	0.00	0.00	0.00	176.93
23 + 660.000	7.627	24.10	22.35	170.46	0.00	0.00	0.00	170.46
23 + 680.000	20.000	24.10	24.10	482.00	0.00	0.00	0.00	482.00
23 + 700.000	20.000	24.80	24.45	489.00	0.00	0.00	0.00	489.00
23 + 720.000	20.000	24.60	24.70	494.00	1.80	0.90	18.00	512.00
23 + 740.000	20.000	26.80	25.70	514.00	2.00	1.90	38.00	552.00
23 + 760.000	20.000	27.90	27.35	547.00	1.30	1.65	33.00	580.00
23 + 780.000	20.000	27.50	27.70	554.00	2.10	1.70	34.00	588.00
23 + 800.000	20.000	25.00	26.25	525.00	1.10	1.60	32.00	557.00
23 + 820.000	20.000	22.60	23.80	476.00	1.20	1.15	23.00	499.00
23 + 840.000	20.000	18.60	20.60	412.00	1.60	1.40	28.00	440.00
23 + 860.000	20.000	13.90	16.25	325.00	1.10	1.35	27.00	352.00
23 + 880.000	20.000	11.00	12.45	249.00	0.00	0.55	11.00	260.00
23 + 900.000	20.000	5.60	8.30	166.00	0.00	0.00	0.00	166.00
23 + 920.000	20.000	2.60	4.10	82.00	4.60	2.30	46.00	128.00
23 + 940.000	20.000	2.50	2.55	51.00	6.00	5.30	106.00	157.00
23 + 960.000	20.000	2.00	2.25	45.00	11.00	8.50	170.00	215.00
23 + 980.000	20.000	2.00	2.00	40.00	10.90	10.95	219.00	259.00
24 + 0.000	20.000	2.00	2.00	40.00	11.60	11.25	225.00	265.00
24 + 20.000	20.000	2.00	2.00	40.00	11.30	11.45	229.00	269.00
24 + 40.000	20.000	2.00	2.00	40.00	11.50	11.40	228.00	268.00
24 + 60.000	20.000	3.80	2.90	58.00	7.70	9.60	192.00	250.00
24 + 80.000	20.000	2.00	2.90	58.00	12.00	9.85	197.00	255.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
24 + 83.917	3.917	2.00	2.00	7.83	12.20	12.10	47.40	55.23
24 + 100.000	16.083	2.00	2.00	32.17	13.50	12.85	206.67	238.83
24 + 120.000	20.000	2.00	2.00	40.00	15.00	14.25	285.00	325.00
24 + 140.000	20.000	2.00	2.00	40.00	15.60	15.30	306.00	346.00
24 + 160.000	20.000	2.00	2.00	40.00	17.60	16.60	332.00	372.00
24 + 180.000	20.000	2.00	2.00	40.00	18.70	18.15	363.00	403.00
24 + 200.000	20.000	2.00	2.00	40.00	18.20	18.45	369.00	409.00
24 + 220.000	20.000	2.00	2.00	40.00	16.20	17.20	344.00	384.00
24 + 240.000	20.000	2.00	2.00	40.00	13.70	14.95	299.00	339.00
24 + 260.000	20.000	2.00	2.00	40.00	10.70	12.20	244.00	284.00
24 + 280.000	20.000	2.90	2.45	49.00	7.10	8.90	178.00	227.00
24 + 297.250	17.250	7.70	5.30	91.43	3.20	5.15	88.84	180.26
24 + 300.000	2.750	7.90	7.80	21.45	2.80	3.00	8.25	29.70
24 + 320.000	20.000	10.70	9.30	186.00	2.10	2.45	49.00	235.00
24 + 340.000	20.000	12.70	11.70	234.00	3.80	2.95	59.00	293.00
24 + 360.000	20.000	14.70	13.70	274.00	2.10	2.95	59.00	333.00
24 + 380.000	20.000	16.30	15.50	310.00	3.80	2.95	59.00	369.00
24 + 400.000	20.000	14.20	15.25	305.00	2.20	3.00	60.00	365.00
24 + 420.000	20.000	14.90	14.55	291.00	2.20	2.20	44.00	335.00
24 + 440.000	20.000	14.20	14.55	291.00	2.30	2.25	45.00	336.00
24 + 460.000	20.000	14.60	14.40	288.00	2.30	2.30	46.00	334.00
24 + 480.000	20.000	9.80	12.20	244.00	2.30	2.30	46.00	290.00
24 + 500.000	20.000	5.40	7.60	152.00	2.20	2.25	45.00	197.00
24 + 520.000	20.000	2.00	3.70	74.00	11.30	6.75	135.00	209.00
24 + 540.000	20.000	2.00	2.00	40.00	15.00	13.15	263.00	303.00
24 + 560.000	20.000	2.00	2.00	40.00	18.60	16.80	336.00	376.00
24 + 580.000	20.000	2.00	2.00	40.00	21.00	19.80	396.00	436.00
24 + 600.000	20.000	2.00	2.00	40.00	22.90	21.95	439.00	479.00
24 + 620.000	20.000	2.00	2.00	40.00	25.20	24.05	481.00	521.00
24 + 640.000	20.000	2.00	2.00	40.00	25.70	25.45	509.00	549.00
24 + 660.000	20.000	2.00	2.00	40.00	25.80	25.75	515.00	555.00
24 + 680.000	20.000	2.00	2.00	40.00	26.50	26.15	523.00	563.00
24 + 700.000	20.000	2.00	2.00	40.00	24.00	25.25	505.00	545.00
24 + 720.000	20.000	2.00	2.00	40.00	17.50	20.75	415.00	455.00
24 + 740.000	20.000	2.00	2.00	40.00	10.80	14.15	283.00	323.00
24 + 760.000	20.000	3.70	2.85	57.00	5.20	8.00	160.00	217.00
24 + 780.000	20.000	9.60	6.65	133.00	1.30	3.25	65.00	198.00
24 + 800.000	20.000	12.10	10.85	217.00	0.80	1.05	21.00	238.00
24 + 820.000	20.000	11.40	11.75	235.00	1.00	0.90	18.00	253.00
24 + 840.000	20.000	11.10	11.25	225.00	0.90	0.95	19.00	244.00
24 + 860.000	20.000	10.50	10.80	216.00	0.70	0.80	16.00	232.00
24 + 880.000	20.000	10.80	10.65	213.00	0.90	0.80	16.00	229.00
24 + 900.000	20.000	13.00	11.90	238.00	0.00	0.45	9.00	247.00
24 + 920.000	20.000	16.00	14.50	290.00	0.00	0.00	0.00	290.00
24 + 940.000	20.000	20.50	18.25	365.00	0.00	0.00	0.00	365.00
24 + 960.000	20.000	24.00	22.25	445.00	0.00	0.00	0.00	445.00
24 + 980.000	20.000	25.60	24.80	496.00	0.00	0.00	0.00	496.00
25 + 0.000	20.000	22.10	23.85	477.00	0.00	0.00	0.00	477.00
25 + 20.000	20.000	17.30	19.70	394.00	0.00	0.00	0.00	394.00
25 + 34.729	14.729	13.50	15.40	226.83	0.00	0.00	0.00	226.83
25 + 40.000	5.271	12.50	13.00	68.52	0.00	0.00	0.00	68.52
25 + 60.000	20.000	10.40	11.45	229.00	0.00	0.00	0.00	229.00
25 + 80.000	20.000	8.20	9.30	186.00	0.00	0.00	0.00	186.00
25 + 100.000	20.000	7.00	7.60	152.00	0.00	0.00	0.00	152.00
25 + 120.000	20.000	6.90	6.95	139.00	0.00	0.00	0.00	139.00
25 + 140.000	20.000	5.60	6.25	125.00	0.00	0.00	0.00	125.00
25 + 160.000	20.000	4.70	5.15	103.00	0.00	0.00	0.00	103.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
25 + 180.000	20.000	3.00	3.85	77.00	0.00	0.00	0.00	77.00
25 + 200.000	20.000	2.00	2.50	50.00	8.70	4.35	87.00	137.00
25 + 220.000	20.000	2.00	2.00	40.00	10.60	9.65	193.00	233.00
25 + 240.000	20.000	2.00	2.00	40.00	13.90	12.25	245.00	285.00
25 + 248.062	8.062	2.00	2.00	16.12	16.70	15.30	123.35	139.47
25 + 260.000	11.938	2.00	2.00	23.88	17.10	16.90	201.75	225.63
25 + 280.000	20.000	2.00	2.00	40.00	18.50	17.80	356.00	396.00
25 + 300.000	20.000	2.00	2.00	40.00	17.90	18.20	364.00	404.00
25 + 320.000	20.000	2.00	2.00	40.00	16.10	17.00	340.00	380.00
25 + 340.000	20.000	2.00	2.00	40.00	13.30	14.70	294.00	334.00
25 + 360.000	20.000	4.30	3.15	63.00	5.90	9.60	192.00	255.00
25 + 380.000	20.000	11.60	7.95	159.00	1.90	3.90	78.00	237.00
25 + 400.000	20.000	13.30	12.45	249.00	2.50	2.20	44.00	293.00
25 + 420.000	20.000	13.80	13.55	271.00	2.00	2.25	45.00	316.00
25 + 440.000	20.000	12.80	13.30	266.00	2.20	2.10	42.00	308.00
25 + 460.000	20.000	10.80	11.80	236.00	2.20	2.20	44.00	280.00
25 + 480.000	20.000	7.50	9.15	183.00	2.30	2.25	45.00	228.00
25 + 500.000	20.000	3.20	5.35	107.00	6.50	4.40	88.00	195.00
25 + 520.000	20.000	2.00	2.60	52.00	12.10	9.30	186.00	238.00
25 + 540.000	20.000	2.00	2.00	40.00	13.50	12.80	256.00	296.00
25 + 560.000	20.000	2.00	2.00	40.00	15.20	14.35	287.00	327.00
25 + 580.000	20.000	2.00	2.00	40.00	15.40	15.30	306.00	346.00
25 + 600.000	20.000	2.00	2.00	40.00	15.30	15.35	307.00	347.00
25 + 620.000	20.000	2.00	2.00	40.00	15.10	15.20	304.00	344.00
25 + 640.000	20.000	2.00	2.00	40.00	15.50	15.30	306.00	346.00
25 + 660.000	20.000	2.00	2.00	40.00	15.70	15.60	312.00	352.00
25 + 680.000	20.000	2.00	2.00	40.00	16.40	16.05	321.00	361.00
25 + 700.000	20.000	2.00	2.00	40.00	16.80	16.60	332.00	372.00
25 + 720.000	20.000	2.00	2.00	40.00	18.00	17.40	348.00	388.00
25 + 740.000	20.000	2.00	2.00	40.00	18.90	18.45	369.00	409.00
25 + 760.000	20.000	2.00	2.00	40.00	20.00	19.45	389.00	429.00
25 + 780.000	20.000	2.00	2.00	40.00	21.80	20.90	418.00	458.00
25 + 800.000	20.000	2.00	2.00	40.00	21.50	21.65	433.00	473.00
25 + 820.000	20.000	2.00	2.00	40.00	22.00	21.75	435.00	475.00
25 + 840.000	20.000	2.00	2.00	40.00	21.30	21.65	433.00	473.00
25 + 860.000	20.000	2.00	2.00	40.00	20.30	20.80	416.00	456.00
25 + 880.000	20.000	2.00	2.00	40.00	18.20	19.25	385.00	425.00
25 + 900.000	20.000	2.00	2.00	40.00	17.40	17.80	356.00	396.00
25 + 920.000	20.000	2.00	2.00	40.00	15.10	16.25	325.00	365.00
25 + 940.000	20.000	2.00	2.00	40.00	12.40	13.75	275.00	315.00
25 + 960.000	20.000	2.00	2.00	40.00	10.00	11.20	224.00	264.00
25 + 977.161	17.161	2.00	2.00	34.32	9.10	9.55	163.89	198.21
25 + 980.000	2.839	2.00	2.00	5.68	9.20	9.15	25.98	31.65
26 + 0.000	20.000	3.20	2.60	52.00	5.30	7.25	145.00	197.00
26 + 20.000	20.000	3.20	3.20	64.00	8.90	7.10	142.00	206.00
26 + 40.000	20.000	3.20	3.20	64.00	16.50	12.70	254.00	318.00
26 + 60.000	20.000	2.00	2.60	52.00	30.50	23.50	470.00	522.00
26 + 80.000	20.000	2.00	2.00	40.00	31.80	31.15	623.00	663.00
26 + 100.000	20.000	2.00	2.00	40.00	36.10	33.95	679.00	719.00
26 + 120.000	20.000	2.00	2.00	40.00	38.30	37.20	744.00	784.00
26 + 140.000	20.000	2.00	2.00	40.00	38.40	38.35	767.00	807.00
26 + 160.000	20.000	2.00	2.00	40.00	34.00	36.20	724.00	764.00
26 + 180.000	20.000	2.00	2.00	40.00	26.00	30.00	600.00	640.00
26 + 200.000	20.000	2.00	2.00	40.00	15.00	20.50	410.00	450.00
26 + 220.000	20.000	16.20	9.10	182.00	5.30	10.15	203.00	385.00
26 + 240.000	20.000	39.10	27.65	553.00	4.40	4.85	97.00	650.00
26 + 260.000	20.000	62.00	50.55	1,011.00	6.50	5.45	109.00	1120.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
26 + 280.000	20.000	83.70	72.85	1,457.00	2.50	4.50	90.00	1547.00
26 + 300.000	20.000	92.80	88.25	1,765.00	3.50	3.00	60.00	1825.00
26 + 320.000	20.000	98.10	95.45	1,909.00	6.60	5.05	101.00	2010.00
26 + 340.000	20.000	95.10	96.60	1,932.00	7.60	7.10	142.00	2074.00
26 + 360.000	20.000	92.50	93.80	1,876.00	4.00	5.80	116.00	1992.00
26 + 380.000	20.000	90.90	91.70	1,834.00	5.10	4.55	91.00	1925.00
26 + 400.000	20.000	79.10	85.00	1,700.00	4.70	4.90	98.00	1798.00
26 + 420.000	20.000	63.10	71.10	1,422.00	4.80	4.75	95.00	1517.00
26 + 440.000	20.000	51.20	57.15	1,143.00	3.40	4.10	82.00	1225.00
26 + 460.000	20.000	34.70	42.95	859.00	5.00	4.20	84.00	943.00
26 + 480.000	20.000	20.50	27.60	552.00	1.10	3.05	61.00	613.00
26 + 500.000	20.000	19.20	19.85	397.00	2.60	1.85	37.00	434.00
26 + 520.000	20.000	11.40	15.30	306.00	3.00	2.80	56.00	362.00
26 + 540.000	20.000	6.20	8.80	176.00	2.70	2.85	57.00	233.00
26 + 560.000	20.000	4.30	5.25	105.00	6.50	4.60	92.00	197.00
26 + 580.000	20.000	2.00	3.15	63.00	11.70	9.10	182.00	245.00
26 + 600.000	20.000	2.00	2.00	40.00	14.80	13.25	265.00	305.00
26 + 620.000	20.000	2.00	2.00	40.00	10.90	12.85	257.00	297.00
26 + 640.000	20.000	2.00	2.00	40.00	23.10	17.00	340.00	380.00
26 + 660.000	20.000	2.00	2.00	40.00	20.20	21.65	433.00	473.00
26 + 680.000	20.000	2.00	2.00	40.00	19.20	19.70	394.00	434.00
26 + 700.000	20.000	2.00	2.00	40.00	20.50	19.85	397.00	437.00
26 + 720.000	20.000	2.00	2.00	40.00	19.70	20.10	402.00	442.00
26 + 740.000	20.000	3.50	2.75	55.00	17.00	18.35	367.00	422.00
26 + 760.000	20.000	2.00	2.75	55.00	16.20	16.60	332.00	387.00
26 + 780.000	20.000	4.80	3.40	68.00	13.80	15.00	300.00	368.00
26 + 800.000	20.000	3.30	4.05	81.00	14.30	14.05	281.00	362.00
26 + 820.000	20.000	2.30	2.80	56.00	14.10	14.20	284.00	340.00
26 + 840.000	20.000	2.20	2.25	45.00	13.30	13.70	274.00	319.00
26 + 860.000	20.000	3.60	2.90	58.00	13.80	13.55	271.00	329.00
26 + 880.000	20.000	4.00	3.80	76.00	10.70	12.25	245.00	321.00
26 + 900.000	20.000	3.40	3.70	74.00	13.40	12.05	241.00	315.00
26 + 920.000	20.000	3.20	3.30	66.00	13.10	13.25	265.00	331.00
26 + 940.000	20.000	2.90	3.05	61.00	12.80	12.95	259.00	320.00
26 + 945.157	5.157	3.20	3.05	15.73	13.00	12.90	66.53	82.25
26 + 960.000	14.843	3.00	3.10	46.01	13.00	13.00	192.96	238.97
26 + 980.000	20.000	3.50	3.25	65.00	13.40	13.20	264.00	329.00
27 + 0.000	20.000	2.00	2.75	55.00	22.30	17.85	357.00	412.00
27 + 20.000	20.000	2.00	2.00	40.00	15.50	18.90	378.00	418.00
27 + 40.000	20.000	2.00	2.00	40.00	13.40	14.45	289.00	329.00
27 + 60.000	20.000	2.00	2.00	40.00	14.00	13.70	274.00	314.00
27 + 80.000	20.000	2.00	2.00	40.00	13.50	13.75	275.00	315.00
27 + 100.000	20.000	2.00	2.00	40.00	13.70	13.60	272.00	312.00
27 + 120.000	20.000	2.00	2.00	40.00	13.80	13.75	275.00	315.00
27 + 140.000	20.000	2.00	2.00	40.00	12.20	13.00	260.00	300.00
27 + 160.000	20.000	2.00	2.00	40.00	10.20	11.20	224.00	264.00
27 + 180.000	20.000	2.00	2.00	40.00	13.60	11.90	238.00	278.00
27 + 200.000	20.000	2.00	2.00	40.00	11.00	12.30	246.00	286.00
27 + 220.000	20.000	2.00	2.00	40.00	9.90	10.45	209.00	249.00
27 + 240.000	20.000	2.10	2.05	41.00	2.20	6.05	121.00	162.00
27 + 260.000	20.000	2.00	2.05	41.00	8.60	5.40	108.00	149.00
27 + 280.000	20.000	2.00	2.00	40.00	8.60	8.60	172.00	212.00
27 + 300.000	20.000	2.00	2.00	40.00	9.30	8.95	179.00	219.00
27 + 320.000	20.000	2.00	2.00	40.00	9.90	9.60	192.00	232.00
27 + 340.000	20.000	2.00	2.00	40.00	9.50	9.70	194.00	234.00
27 + 360.000	20.000	2.00	2.00	40.00	9.80	9.65	193.00	233.00
27 + 380.000	20.000	3.20	2.60	52.00	7.40	8.60	172.00	224.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
27 + 400.000	20.000	3.20	3.20	64.00	8.90	8.15	163.00	227.00
27 + 420.000	20.000	3.20	3.20	64.00	9.90	9.40	188.00	252.00
27 + 440.000	20.000	4.10	3.65	73.00	10.10	10.00	200.00	273.00
27 + 460.000	20.000	5.90	5.00	100.00	9.90	10.00	200.00	300.00
27 + 480.000	20.000	7.70	6.80	136.00	9.50	9.70	194.00	330.00
27 + 500.000	20.000	9.30	8.50	170.00	9.80	9.65	193.00	363.00
27 + 520.000	20.000	2.00	5.65	113.00	19.50	14.65	293.00	406.00
27 + 540.000	20.000	2.00	2.00	40.00	20.30	19.90	398.00	438.00
27 + 560.000	20.000	2.00	2.00	40.00	20.20	20.25	405.00	445.00
27 + 580.000	20.000	3.20	2.60	52.00	17.70	18.95	379.00	431.00
27 + 600.000	20.000	3.20	3.20	64.00	17.00	17.35	347.00	411.00
27 + 620.000	20.000	4.80	4.00	80.00	16.70	16.85	337.00	417.00
27 + 640.000	20.000	5.00	4.90	98.00	15.40	16.05	321.00	419.00
27 + 660.000	20.000	4.50	4.75	95.00	14.80	15.10	302.00	397.00
27 + 669.800	9.800	5.40	4.95	48.51	14.20	14.50	142.10	190.61
27 + 680.000	10.200	5.40	5.40	55.08	14.00	14.10	143.82	198.90
27 + 700.000	20.000	5.90	5.65	113.00	12.80	13.40	268.00	381.00
27 + 720.000	20.000	6.10	6.00	120.00	12.10	12.45	249.00	369.00
27 + 740.000	20.000	6.10	6.10	122.00	6.00	9.05	181.00	303.00
27 + 760.000	20.000	6.00	6.05	121.00	8.10	7.05	141.00	262.00
27 + 780.000	20.000	5.40	5.70	114.00	6.10	7.10	142.00	256.00
27 + 800.000	20.000	3.00	4.20	84.00	6.20	6.15	123.00	207.00
27 + 820.000	20.000	2.00	2.50	50.00	11.20	8.70	174.00	224.00
27 + 829.800	9.800	2.00	2.00	19.60	12.10	11.65	114.17	133.77
27 + 840.000	10.200	2.00	2.00	20.40	13.70	12.90	131.58	151.98
27 + 860.000	20.000	2.00	2.00	40.00	17.30	15.50	310.00	350.00
27 + 880.000	20.000	2.00	2.00	40.00	27.70	22.50	450.00	490.00
27 + 900.000	20.000	2.00	2.00	40.00	25.20	26.45	529.00	569.00
27 + 920.000	20.000	2.00	2.00	40.00	23.60	24.40	488.00	528.00
27 + 940.000	20.000	2.00	2.00	40.00	21.90	22.75	455.00	495.00
27 + 960.000	20.000	2.00	2.00	40.00	24.20	23.05	461.00	501.00
27 + 980.000	20.000	2.00	2.00	40.00	18.90	21.55	431.00	471.00
28 + 0.000	20.000	2.00	2.00	40.00	15.60	17.25	345.00	385.00
28 + 20.000	20.000	2.00	2.00	40.00	12.90	14.25	285.00	325.00
28 + 40.000	20.000	2.00	2.00	40.00	9.10	11.00	220.00	260.00
28 + 60.000	20.000	8.90	5.45	109.00	2.70	5.90	118.00	227.00
28 + 80.000	20.000	9.30	9.10	182.00	5.20	3.95	79.00	261.00
28 + 100.000	20.000	12.30	10.80	216.00	2.70	3.95	79.00	295.00
28 + 120.000	20.000	13.50	12.90	258.00	1.60	2.15	43.00	301.00
28 + 120.000	0.000	2.00	7.75	0.00	0.00	0.80	0.00	0.00
28 + 140.000	20.000	31.50	16.75	335.00	2.00	1.00	20.00	355.00
28 + 160.000	20.000	33.20	32.35	647.00	1.40	1.70	34.00	681.00
28 + 180.000	20.000	34.80	34.00	680.00	1.00	1.20	24.00	704.00
28 + 200.000	20.000	34.00	34.40	688.00	1.80	1.40	28.00	716.00
28 + 220.000	20.000	14.30	24.15	483.00	0.10	0.95	19.00	502.00
28 + 240.000	20.000	13.70	14.00	280.00	4.60	2.35	47.00	327.00
28 + 244.064	4.064	2.00	7.85	31.90	0.00	2.30	9.35	41.25
28 + 244.064	0.000	2.00	2.00	0.00	0.00	0.00	0.00	0.00
28 + 260.000	15.936	2.90	2.45	39.04	2.60	1.30	20.72	59.76
28 + 280.000	20.000	2.20	2.55	51.00	1.50	2.05	41.00	92.00
28 + 289.489	9.489	2.80	2.50	23.72	0.00	0.75	7.12	30.84
28 + 300.000	10.511	3.00	2.90	30.48	0.00	0.00	0.00	30.48
28 + 320.000	20.000	2.70	2.85	57.00	0.00	0.00	0.00	57.00
28 + 333.000	13.000	2.00	2.35	30.55	0.00	0.00	0.00	30.55
28 + 333.000	0.000	2.00	2.00	0.00	0.00	0.00	0.00	0.00
28 + 340.000	7.000	4.20	3.10	21.70	0.00	0.00	0.00	21.70
28 + 360.000	20.000	6.60	5.40	108.00	0.00	0.00	0.00	108.00

COMPUTATION OF GRASSING AREA
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
28 + 380.000	20.000	4.30	5.45	109.00	7.00	3.50	70.00	179.00
28 + 400.000	20.000	19.30	11.80	236.00	0.00	3.50	70.00	306.00
28 + 416.085	16.085	3.10	11.20	180.15	0.00	0.00	0.00	180.15
TOTAL	28600.96	14449.20	14,444.25	272,432.96	14,187.57	14,187.57	267,660.77	540,093.73

COMPUTATION OF GRASSING AREA

MOMBASA ROAD JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 380.000		1.90						
(0 + 280.000)								
0 + 100.329	100.00	1.90	1.90	190.00				190.00
0 + 120.000	19.67	2.00	1.95	38.36	0.00	0.00	0.00	38.36
0 + 140.000	20.00	3.70	2.85	57.00	3.30	1.65	33.00	90.00
0 + 145.905	5.91	3.80	3.75	22.14	3.30	3.30	19.49	41.63
0 + 160.000	14.10	3.80	3.80	53.56	3.20	3.25	45.81	99.37
0 + 162.278	2.28	3.80	3.80	8.66	3.40	3.30	7.52	16.17
0 + 180.000	17.72	4.20	4.00	70.89	3.50	3.45	61.14	132.03
0 + 200.000	20.00	4.60	4.40	88.00	3.20	3.35	67.00	155.00
0 + 220.000	20.00	6.40	5.50	110.00	0.00	1.60	32.00	142.00
0 + 222.278	2.28	7.80	7.10	16.17	0.00	0.00	0.00	16.17
0 + 240.000	17.72	7.70	7.75	137.35	0.00	0.00	0.00	137.35
0 + 260.000	20.00	2.00	4.85	97.00	0.00	0.00	0.00	97.00
0 + 264.945	4.94	1.60	1.80	8.90	0.00	0.00	0.00	8.90
0 + 280.000	15.06	1.20	1.40	21.08	0.00	0.00	0.00	21.08
0 + 300.000	20.00	2.20	1.70	34.00	0.00	0.00	0.00	34.00
0 + 320.000	20.00	2.30	2.25	45.00	0.00	0.00	0.00	45.00
0 + 340.000	20.00	4.20	3.25	65.00	0.00	0.00	0.00	65.00
0 + 345.583	5.58	4.40	4.30	24.01	0.00	0.00	0.00	24.01
0 + 360.000	14.42	3.50	3.95	56.95	0.00	0.00	0.00	56.95
0 + 380.000	20.00	5.20	4.35	87.00	0.00	0.00	0.00	87.00
0 + 388.250	8.25	4.30	4.75	39.19	0.00	0.00	0.00	39.19
0 + 400.000	11.75	6.00	5.15	60.51	0.00	0.00	0.00	60.51
0 + 420.000	20.00	6.10	6.05	121.00	0.00	0.00	0.00	121.00
0 + 430.916	10.92	5.50	5.80	63.31	0.00	0.00	0.00	63.31
0 + 440.000	9.08	6.40	5.95	54.05	0.00	0.00	0.00	54.05
0 + 456.816	16.82	5.60	6.00	100.90	0.00	0.00	0.00	100.90
0 + 460.000	3.18	5.40	5.50	17.51	0.00	0.00	0.00	17.51
0 + 475.288	15.29		2.70	41.28	0.00	0.00	0.00	41.28
TOTAL	474.96	117.50	116.55	1,728.81	19.90	19.90	265.95	1,994.76

COMPUTATION OF GRASSING AREA

MOMBASA ROAD JUNCTION : C Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 019.523								
0 + 020.000	0.48	10.10	11.50	5.49	2.60	2.60	1.24	6.73
0 + 040.000	20.00	9.90	10.00	200.00	3.00	2.80	56.00	256.00
0 + 060.000	20.00	9.20	9.55	191.00	3.20	3.10	62.00	253.00
0 + 080.000	20.00	8.30	8.75	175.00	3.30	3.25	65.00	240.00
0 + 081.715	1.72	9.80	9.05	15.52	3.20	3.25	5.57	21.09
0 + 099.379	17.66	8.30	9.05	159.86	3.20	3.20	56.52	216.38
0 + 100.000	0.62	8.30	8.30	5.15	3.10	3.15	1.96	7.11
0 + 120.000	20.00	6.40	7.35	147.00	2.90	3.00	60.00	207.00
0 + 140.000	20.00	9.60	8.00	160.00	0.00	1.45	29.00	189.00
0 + 160.000	20.00	14.00	11.80	236.00	0.00	0.00	0.00	236.00
0 + 180.000	20.00	4.40	9.20	184.00	4.30	2.15	43.00	227.00
0 + 189.496	9.50	1.00	2.70	25.64	7.90	6.10	57.93	83.56
0 + 200.000	10.50	1.00	1.00	10.50	8.50	8.20	86.13	96.64
0 + 220.000	20.00	1.00	1.00	20.00	9.00	8.75	175.00	195.00
0 + 226.502	6.50	1.00	1.00	6.50	8.20	8.60	55.92	62.42
0 + 240.000	13.50	1.00	1.00	13.50	7.30	7.75	104.61	118.11
(0 + 257.054)								
0 + 064.811	17.05	1.10	0.55	9.38	3.10	1.55	26.43	35.81
0 + 080.619	15.81	1.10	1.10	17.39	3.20	3.15	49.80	67.18
0 + 220.000	139.38	1.10	1.10	153.32	2.80	3.00	418.14	571.46
0 + 260.000	40.00	1.10	1.10	44.00	2.80	2.80	112.00	156.00
Total	432.72	107.70	113.10	1779.25	81.60	77.85	1466.25	3245.50

COMPUTATION OF GRASSING AREA

MOMBASA ROAD JUNCTION : E Slip Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 - 150.000		1.70			2.70			
0 - 110.000	40.00	1.70	1.70	68.00	2.70	2.70	108.00	176.00
0 - 073.555	36.45	1.10	1.40	51.02	4.80	3.75	136.67	187.69
(0 - 57.748)								
0 + 016.644	15.81	1.00	0.50	7.90	0.00	0.00	0.00	7.90
0 + 020.000	3.36	3.20	2.10	7.05	3.10	1.55	5.20	12.25
0 + 040.000	20.00	1.00	2.10	42.00	9.70	6.40	128.00	170.00
0 + 046.959	6.96	1.00	1.00	6.96	6.80	8.25	57.41	64.37
0 + 060.000	13.04	3.40	2.20	28.69	2.80	4.80	62.60	91.29
0 + 080.000	20.00	1.00	2.20	44.00	7.20	5.00	100.00	144.00
0 + 085.678	5.68	5.10	3.05	17.32	3.00	5.10	28.96	46.28
0 + 100.000	14.32	5.50	5.30	75.91	2.50	2.75	39.39	115.29
0 + 120.000	20.00	6.50	6.00	120.00	3.30	2.90	58.00	178.00
0 + 140.000	20.00	7.80	7.15	143.00	3.10	3.20	64.00	207.00
0 + 160.000	20.00	9.60	8.70	174.00	3.40	3.25	65.00	239.00
0 + 180.000	20.00	9.30	9.45	189.00	2.70	3.05	61.00	250.00
0 + 194.633	14.63	10.40	9.85	144.14	3.10	2.90	42.44	186.57
0 + 200.000	5.37	10.60	10.50	56.35	2.90	3.00	16.10	72.45
0 + 220.000	20.00	10.60	10.60	212.00	2.90	2.90	58.00	270.00
0 + 234.897	14.90	10.20	10.40	154.93	2.80	2.85	42.46	197.39
0 + 240.000	5.10	10.20	10.20	52.05	3.00	2.90	14.80	66.85
0 + 260.000	20.00	9.70	9.95	199.00	3.10	3.05	61.00	260.00
0 + 263.960	3.96		4.85	19.21	0.00	1.55	6.14	25.34
Total	339.57	120.60	119.20	1812.52	75.60	71.85	1155.15	2967.67

COMPUTATION OF GRASSING AREA
MOMBASA ROAD JUNCTION : G Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 100.000		7.50			1.90			
0 + 115.106	15.11	8.10	7.80	117.83	2.50	2.20	33.23	151.06
0 + 120.000	4.89	8.40	8.25	40.38	2.60	2.55	12.48	52.86
0 + 140.000	20.00	8.80	8.60	172.00	2.70	2.65	53.00	225.00
0 + 157.772	17.77	8.60	8.70	154.62	2.40	2.55	45.32	199.93
0 + 160.000	2.23	8.40	8.50	18.94	2.10	2.25	5.01	23.95
0 + 180.000	20.00	8.10	8.25	165.00	2.80	2.45	49.00	214.00
0 + 200.000	20.00	8.40	8.25	165.00	3.20	3.00	60.00	225.00
0 + 220.000	20.00	6.70	7.55	151.00	3.90	3.55	71.00	222.00
0 + 240.000	20.00	5.10	5.90	118.00	4.60	4.25	85.00	203.00
0 + 260.000	20.00	1.00	3.05	61.00	8.50	6.55	131.00	192.00
0 + 280.000	20.00	1.00	1.00	20.00	7.80	8.15	163.00	183.00
0 + 300.000	20.00	1.00	1.00	20.00	6.90	7.35	147.00	167.00
0 + 320.000	20.00	1.00	1.00	20.00	5.10	6.00	120.00	140.00
(0 + 325.775)								
0 + 224.958	5.77	1.10	0.55	3.18	6.00	3.00	17.32	20.50
0 + 254.000	29.04	1.10	1.10	31.95	6.10	6.05	175.70	207.65
0 + 380.000	126.00	1.10	1.10	138.60	3.30	4.70	592.20	730.80
0 + 420.000	40.00	1.10	1.10	44.00	3.30	3.30	132.00	176.00
Total	420.82	86.50	81.70	1441.48	75.70	70.55	1892.27	3333.75

COMPUTATION OF GRASSING AREA

MOMBASA ROAD JUNCTION : U-TURN Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
1. ACELERATION LANE								
0 + 700.000		1.30						
0 + 750.000	50.00	1.30	1.30	65.00		0.00	0.00	65.00
0 + 800.000	50.00	1.20	1.25	62.50		0.00	0.00	62.50
0 + 860.000	60.00	1.40	1.30	78.00		0.00	0.00	78.00
0 + 900.000	40.00	1.70	1.55	62.00		0.00	0.00	62.00
0 + 930.000	30.00	1.90	1.80	54.00		0.00	0.00	54.00
Subtotal	230.00	8.80	7.20	321.50	0.00	0.00	0.00	321.50
2. DECELERATION LANE								
0 + 700.000								
0 + 750.000	50.00	0.00	0.00	0.00		0.00	0.00	0.00
0 + 800.000	50.00	1.20	0.60	30.00		0.00	0.00	30.00
0 + 860.000	60.00	1.20	1.20	72.00		0.00	0.00	72.00
0 + 900.000	40.00	1.20	1.20	48.00		0.00	0.00	48.00
0 + 930.000	30.00	1.40	1.30	39.00		0.00	0.00	39.00
Subtotal	230.00	5.00	4.30	189.00	0.00	0.00	0.00	189.00
3. U-TURN LANE								
Global (*)				700.00				700.00
Subtotal	0.00	0.00	0.00	700.00				700.00
Total	460.00	13.80	11.50	1210.50	0.00	0.00	0.00	1210.50

COMPUTATION OF GRASSING AREA
UHURU MONUMENT JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 140.000		7.40			1.50			
0 + 160.000	20.00	7.00	7.20	144.00	1.30	1.40	28.00	172.00
0 + 180.000	20.00	8.20	7.60	152.00	1.40	1.35	27.00	179.00
0 + 200.000	20.00	8.20	8.20	164.00	1.40	1.40	28.00	192.00
0 + 216.569	16.57	7.40	7.80	129.24	1.60	1.50	24.85	154.09
0 + 220.000	3.43	7.40	7.40	25.39	1.50	1.55	5.32	30.71
0 + 240.000	20.00	8.30	7.85	157.00	1.10	1.30	26.00	183.00
0 + 260.000	20.00	5.50	6.90	138.00	6.30	3.70	74.00	212.00
0 + 280.000	20.00	4.90	5.20	104.00	9.00	7.65	153.00	257.00
0 + 300.000	20.00	5.70	5.30	106.00	9.50	9.25	185.00	291.00
0 + 320.000	20.00	2.00	3.85	77.00	14.30	11.90	238.00	315.00
0 + 340.000	20.00	2.00	2.00	40.00	15.40	14.85	297.00	337.00
0 + 360.000	20.00	2.00	2.00	40.00	15.10	15.25	305.00	345.00
0 + 373.729	13.73	2.00	2.00	27.46	16.40	15.75	216.23	243.69
0 + 380.000	6.27	2.00	2.00	12.54	17.70	17.05	106.92	119.46
0 + 403.150	23.15	2.00	2.00	46.30	0.00	8.85	204.88	251.18
Total	263.15	82.00	77.30	1362.93	113.50	112.75	1919.20	3282.13

COMPUTATION OF GRASSING AREA
UHURU MONUMENT JUNCTION : B Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 100.000		10.40			0.00			
0 + 120.000	20.00	13.00	11.70	234.00	0.00	0.00	0.00	234.00
0 + 140.000	20.00	10.90	11.95	239.00	0.00	0.00	0.00	239.00
0 + 160.000	20.00	9.10	10.00	200.00	0.00	0.00	0.00	200.00
0 + 180.000	20.00	10.50	9.80	196.00	0.00	0.00	0.00	196.00
0 + 200.000	20.00	9.30	9.90	198.00	0.00	0.00	0.00	198.00
0 + 220.000	20.00	8.90	9.10	182.00	0.00	0.00	0.00	182.00
0 + 227.794	7.79	7.40	8.15	63.52	0.00	0.00	0.00	63.52
0 + 240.000	12.21	8.20	7.80	95.21	0.00	0.00	0.00	95.21
0 + 260.000	20.00	7.10	7.65	153.00	0.00	0.00	0.00	153.00
0 + 280.000	20.00	2.00	4.55	91.00	24.20	12.10	242.00	333.00
0 + 317.250	37.25	0.00	1.00	37.25		12.10	450.73	487.98
Total	217.25	96.80	91.60	1688.98	24.20	24.20	692.73	2381.70

COMPUTATION OF GRASSING AREA

UHURU MONUMENT JUNCTION : C Slip Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 040.000		9.10			2.90			
0 + 060.000	20.00	7.70	8.40	168.00	3.00	2.95	59.00	227.00
0 + 080.000	20.00	8.40	8.05	161.00	1.20	2.10	42.00	203.00
0 + 100.000	20.00	8.20	8.30	166.00	1.20	1.20	24.00	190.00
0 + 120.000	20.00	11.30	9.75	195.00	0.80	1.00	20.00	215.00
0 + 140.000	20.00	13.60	12.45	249.00	1.70	1.25	25.00	274.00
0 + 160.000	20.00	13.90	13.75	275.00	1.30	1.50	30.00	305.00
0 + 167.172	7.17	13.80	13.85	99.33	1.40	1.35	9.68	109.01
0 + 180.000	12.83	14.40	14.10	180.87	1.50	1.45	18.60	199.48
0 + 200.000	20.00	15.10	14.75	295.00	1.50	1.50	30.00	325.00
0 + 220.000	20.00	15.70	15.40	308.00	0.00	0.75	15.00	323.00
0 + 240.000	20.00	13.30	14.50	290.00	0.00	0.00	0.00	290.00
0 + 260.000	20.00	12.20	12.75	255.00	0.00	0.00	0.00	255.00
0 + 296.250	36.25	0.00	6.10	221.13	0.00	0.00	0.00	221.13
Total	256.25	156.70	152.15	2863.33	16.50	15.05	273.28	3136.61

COMPUTATION OF GRASSING AREA
UHURU MONUMENT JUNCTION : D Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		2.00			7.40			
0 + 040.000	20.00	2.00	2.00	40.00	7.80	7.60	152.00	192.00
0 + 060.000	20.00	2.00	2.00	40.00	8.30	8.05	161.00	201.00
0 + 080.000	20.00	3.50	2.75	55.00	1.70	5.00	100.00	155.00
0 + 100.000	20.00	3.90	3.70	74.00	1.00	1.35	27.00	101.00
0 + 120.000	20.00	6.90	5.40	108.00	0.00	0.50	10.00	118.00
0 + 140.000	20.00	7.60	7.25	145.00	0.00	0.00	0.00	145.00
0 + 160.000	20.00	8.90	8.25	165.00	0.00	0.00	0.00	165.00
0 + 180.000	20.00	8.90	8.90	178.00	0.00	0.00	0.00	178.00
0 + 180.528	0.53	8.80	8.85	4.67	0.00	0.00	0.00	4.67
0 + 200.000	19.47	8.70	8.75	170.38	0.00	0.00	0.00	170.38
0 + 220.000	20.00	11.30	10.00	200.00	0.00	0.00	0.00	200.00
0 + 240.000	20.00	12.80	12.05	241.00	0.00	0.00	0.00	241.00
0 + 260.000	20.00	12.40	12.60	252.00	0.00	0.00	0.00	252.00
0 + 267.430	7.43	13.10	12.75	94.73	0.00	0.00	0.00	94.73
0 + 280.000	12.57	14.10	13.60	170.95	0.00	0.00	0.00	170.95
0 + 293.400	13.40	0.00	7.05	94.47	0.00	0.00	0.00	94.47
Total	273.40	126.90	125.90	2033.21	26.20	22.50	450.00	2483.21

COMPUTATION OF GRASSING AREA

UHURU MONUMENT JUNCTION : Approach Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 000.000		0.40			2.40			
0 + 020.000	20.00	0.40	0.40	8.00	2.40	2.40	48.00	56.00
0 + 040.000	20.00	0.40	0.40	8.00	1.90	2.15	43.00	51.00
0 + 060.000	20.00	0.90	0.65	13.00	1.90	1.90	38.00	51.00
0 + 080.000	20.00	1.60	1.25	25.00	1.50	1.70	34.00	59.00
0 + 100.000	20.00	4.10	2.85	57.00	3.50	2.50	50.00	107.00
0 + 120.000	20.00	4.00	4.05	81.00	3.70	3.60	72.00	153.00
0 + 140.000	20.00	3.50	3.75	75.00	4.10	3.90	78.00	153.00
0 + 160.000	20.00	3.60	3.55	71.00	4.00	4.05	81.00	152.00
0 + 180.000	20.00	3.10	3.35	67.00	4.90	4.45	89.00	156.00
0 + 200.000	20.00	3.20	3.15	63.00	4.80	4.85	97.00	160.00
0 + 220.000	20.00	2.20	2.70	54.00	5.80	5.30	106.00	160.00
0 + 240.000	20.00	2.80	2.50	50.00	5.00	5.40	108.00	158.00
0 + 260.000	20.00	2.70	2.75	55.00	5.50	5.25	105.00	160.00
0 + 280.000	20.00	3.80	3.25	65.00	4.00	4.75	95.00	160.00
0 + 300.000	20.00	4.40	4.10	82.00	3.60	3.80	76.00	158.00
0 + 320.000	20.00	4.10	4.25	85.00	3.60	3.60	72.00	157.00
0 + 340.000	20.00	4.70	4.40	88.00	3.50	3.55	71.00	159.00
0 + 360.000	20.00	2.40	3.55	71.00	5.70	4.60	92.00	163.00
0 + 380.000	20.00	1.30	1.85	37.00	2.20	3.95	79.00	116.00
0 + 400.000	20.00	1.60	1.45	29.00	1.80	2.00	40.00	69.00
0 + 420.000	20.00	1.30	1.45	29.00	1.00	1.40	28.00	57.00
0 + 440.000	20.00	0.40	0.85	17.00	1.80	1.40	28.00	45.00
0 + 460.000	20.00	0.40	0.40	8.00	2.50	2.15	43.00	51.00
0 + 480.000	20.00	0.40	0.40	8.00	2.20	2.35	47.00	55.00
Total	480.00	57.70	57.30	1146.00	83.30	81.00	1620.00	2766.00

COMPUTATION OF GRASSING AREA
NGONG ROAD JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		18.80						
0 + 038.941	18.94	20.40	19.60	371.24		0.00	0.00	371.24
0 + 040.000	1.06	23.50	21.95	23.25		0.00	0.00	23.25
0 + 060.000	20.00	22.10	22.80	456.00		0.00	0.00	456.00
0 + 080.000	20.00	23.50	22.80	456.00		0.00	0.00	456.00
0 + 100.000	20.00	24.20	23.85	477.00		0.00	0.00	477.00
0 + 120.000	20.00	23.80	24.00	480.00		0.00	0.00	480.00
0 + 140.000	20.00	22.50	23.15	463.00		0.00	0.00	463.00
0 + 160.000	20.00	21.00	21.75	435.00		0.00	0.00	435.00
0 + 180.000	20.00	19.50	20.25	405.00		0.00	0.00	405.00
0 + 200.000	20.00	18.70	19.10	382.00		0.00	0.00	382.00
0 + 220.000	20.00	19.00	18.85	377.00		0.00	0.00	377.00
0 + 233.797	13.80	18.90	18.95	261.45		0.00	0.00	261.45
0 + 240.000	6.20	19.10	19.00	117.86		0.00	0.00	117.86
0 + 260.000	20.00	18.00	18.55	371.00		0.00	0.00	371.00
0 + 278.119	18.12	15.00	16.50	298.96		0.00	0.00	298.96
0 + 280.000	1.88	13.70	14.35	26.99		0.00	0.00	26.99
Total	260.00	341.70	325.45	5401.75	0.00	0.00	0.00	5401.75

COMPUTATION OF GRASSING AREA
NGONG ROAD JUNCTION : B Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		2.00			23.00			
0 + 040.000	20.00	2.00	2.00	40.00	22.00	22.50	450.00	490.00
0 + 060.000	20.00	2.00	2.00	40.00	17.60	19.80	396.00	436.00
0 + 080.000	20.00	2.00	2.00	40.00	12.90	15.25	305.00	345.00
0 + 100.000	20.00	6.60	4.30	86.00	7.00	9.95	199.00	285.00
0 + 120.000	20.00	14.90	10.75	215.00	2.00	4.50	90.00	305.00
0 + 140.000	20.00	26.70	20.80	416.00	2.00	2.00	40.00	456.00
0 + 160.000	20.00	36.30	31.50	630.00	1.00	1.50	30.00	660.00
0 + 180.000	20.00	31.40	33.85	677.00	2.90	1.95	39.00	716.00
0 + 200.000	20.00	24.80	28.10	562.00	1.60	2.25	45.00	607.00
0 + 220.000	20.00	18.30	21.55	431.00	1.70	1.65	33.00	464.00
0 + 233.797	13.80	14.80	16.55	228.34	1.70	1.70	23.45	251.80
0 + 240.000	6.20	12.60	13.70	84.98	1.30	1.50	9.30	94.29
0 + 260.000	20.00	7.00	9.80	196.00	2.20	1.75	35.00	231.00
0 + 268.000	8.00	0.00	3.50	28.00	0.00	1.10	8.80	36.80
Total	248.00	201.40	200.40	3674.32	98.90	87.40	1703.56	5377.88

COMPUTATION OF GRASSING AREA

NGONG ROAD JUNCTION : Approach Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 000.000		0.80			6.80			
0 + 020.000	20.00	0.80	0.80	16.00	6.80	6.80	136.00	152.00
0 + 040.000	20.00	0.80	0.80	16.00	7.20	7.00	140.00	156.00
0 + 060.000	20.00	0.40	0.60	12.00	4.90	6.05	121.00	133.00
0 + 080.000	20.00	0.40	0.40	8.00	4.50	4.70	94.00	102.00
0 + 100.000	20.00	0.90	0.65	13.00	2.60	3.55	71.00	84.00
0 + 120.000	20.00	1.30	1.10	22.00	2.00	2.30	46.00	68.00
0 + 140.000	20.00	2.30	1.80	36.00	3.20	2.60	52.00	88.00
0 + 160.000	20.00	0.80	1.55	31.00	6.30	4.75	95.00	126.00
0 + 180.000	20.00	1.80	1.30	26.00	5.30	5.80	116.00	142.00
0 + 200.000	20.00	2.10	1.95	39.00	4.50	4.90	98.00	137.00
0 + 220.000	20.00	1.70	1.90	38.00	4.30	4.40	88.00	126.00
0 + 240.000	20.00	2.00	1.85	37.00	5.10	4.70	94.00	131.00
0 + 260.000	20.00	1.40	1.70	34.00	6.00	5.55	111.00	145.00
0 + 280.000	20.00	0.80	1.10	22.00	5.50	5.75	115.00	137.00
0 + 300.000	20.00	0.80	0.80	16.00	4.20	4.85	97.00	113.00
0 + 320.000	20.00	0.80	0.80	16.00	5.60	4.90	98.00	114.00
0 + 340.000	20.00		0.40	8.00		2.80	56.00	64.00
0 + 360.000	20.00	0.80	0.40	8.00	6.80	3.40	68.00	76.00
0 + 380.000	20.00	1.20	1.00	20.00		3.40	68.00	88.00
0 + 383.970	3.97	1.20	1.20	4.76		0.00	0.00	4.76
Box Culvert						0.00	0.00	0.00
0 + 416.770		3.75				0.00	0.00	0.00
0 + 420.000	3.23	3.75	3.75	12.11		0.00	0.00	12.11
0 + 440.000	20.00	4.10	3.93	78.50	9.40	4.70	94.00	172.50
0 + 460.000	20.00	3.60	3.85	77.00	5.70	7.55	151.00	228.00
0 + 480.000	20.00	2.90	3.25	65.00	5.80	5.75	115.00	180.00
0 + 500.000	20.00	1.80	2.35	47.00	6.80	6.30	126.00	173.00
0 + 520.000	20.00	0.80	1.30	26.00	6.30	6.55	131.00	157.00
0 + 540.000	20.00	0.80	0.80	16.00	6.10	6.20	124.00	140.00
0 + 560.000	20.00	0.40	0.60	12.00	3.00	4.55	91.00	103.00
0 + 580.000	20.00	0.80	0.60	12.00	3.30	3.15	63.00	75.00
0 + 600.000	20.00	0.40	0.60	12.00	2.70	3.00	60.00	72.00
0 + 620.000	20.00	1.20	0.80	16.00	8.70	5.70	114.00	130.00
0 + 640.000	20.00	1.40	1.30	26.00	8.10	8.40	168.00	194.00
0 + 660.000	20.00	1.00	1.20	24.00	6.70	7.40	148.00	172.00
0 + 680.000	20.00	1.10	1.05	21.00	7.80	7.25	145.00	166.00
0 + 700.000	20.00	1.40	1.25	25.00	5.90	6.85	137.00	162.00
0 + 720.000	20.00	1.40	1.40	28.00	5.20	5.55	111.00	139.00
0 + 740.000	20.00	0.90	1.15	23.00	5.50	5.35	107.00	130.00
0 + 760.000	20.00	0.80	0.85	17.00	6.70	6.10	122.00	139.00
0 + 780.000	20.00	0.80	0.80	16.00	6.40	6.55	131.00	147.00
0 + 800.000	20.00	0.80	0.80	16.00	7.20	6.80	136.00	152.00
Total	767.20	57.00	53.72	992.38	208.90	201.90	4038.00	5030.38

COMPUTATION OF GRASSING AREA
DAGORETTI FOREST JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		14.80			2.00			
0 + 038.387	18.39	16.70	15.75	289.60	2.00	2.00	36.77	326.37
0 + 040.000	1.61	17.60	17.15	27.66	2.80	2.40	3.87	31.53
0 + 060.000	20.00	16.60	17.10	342.00	1.90	2.35	47.00	389.00
0 + 080.000	20.00	15.00	15.80	316.00	1.90	1.90	38.00	354.00
0 + 100.000	20.00	14.30	14.65	293.00	2.00	1.95	39.00	332.00
0 + 120.000	20.00	13.20	13.75	275.00	2.20	2.10	42.00	317.00
0 + 140.000	20.00	11.10	12.15	243.00	1.90	2.05	41.00	284.00
0 + 158.579	18.58	9.50	10.30	191.36	2.10	2.00	37.16	228.52
0 + 160.000	1.42	9.40	9.45	13.43	2.00	2.05	2.91	16.34
0 + 180.000	20.00	7.40	8.40	168.00	2.00	2.00	40.00	208.00
0 + 200.000	20.00	7.00	7.20	144.00	2.60	2.30	46.00	190.00
0 + 200.595	0.59	7.20	7.10	4.22	2.10	2.35	1.40	5.62
0 + 220.000	19.41	6.40	6.80	131.95	2.00	2.05	39.78	171.73
0 + 240.000	20.00	8.30	7.35	147.00	1.90	1.95	39.00	186.00
0 + 260.000	20.00	9.00	8.65	173.00	2.80	2.35	47.00	220.00
0 + 276.939	16.94	8.20	8.60	145.68	1.90	2.35	39.81	185.48
0 + 280.000	3.06	8.00	8.10	24.79	2.00	1.95	5.97	30.76
0 + 300.000	20.00	6.70	7.35	147.00	1.80	1.90	38.00	185.00
0 + 314.000	14.00	0.00	3.35	46.90	0.00	0.90	12.60	59.50
Total	294.00	206.40	199.00	3123.60	39.90	38.90	597.27	3720.87

COMPUTATION OF GRASSING AREA

DAGORETTI FOREST JUNCTION : B Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		26.50			3.30			
0 + 038.998	19.00	29.10	27.80	528.14	3.10	3.20	60.79	588.94
0 + 040.000	1.00	29.10	29.10	29.16	3.10	3.10	3.11	32.26
0 + 060.000	20.00	29.30	29.20	584.00	2.60	2.85	57.00	641.00
0 + 080.000	20.00	27.50	28.40	568.00	2.80	2.70	54.00	622.00
0 + 100.000	20.00	23.50	25.50	510.00	1.00	1.90	38.00	548.00
0 + 120.000	20.00	20.30	21.90	438.00	0.90	0.95	19.00	457.00
0 + 122.402	2.40	19.70	20.00	48.04	1.10	1.00	2.40	50.44
0 + 140.000	17.60	16.80	18.25	321.16	1.00	1.05	18.48	339.64
0 + 160.000	20.00	13.90	15.35	307.00	0.90	0.95	19.00	326.00
0 + 180.000	20.00	13.80	13.85	277.00	0.90	0.90	18.00	295.00
0 + 200.000	20.00	9.20	11.50	230.00	1.20	1.05	21.00	251.00
0 + 220.000	20.00	5.40	7.30	146.00	1.60	1.40	28.00	174.00
0 + 240.000	20.00	4.50	4.95	99.00	2.50	2.05	41.00	140.00
0 + 260.000	20.00	4.20	4.35	87.00	6.60	4.55	91.00	178.00
0 + 277.500	17.50	0.00	2.10	36.75	0.00	3.30	57.75	94.50
Total	257.50	272.80	259.55	4209.26	32.60	30.95	528.53	4737.79

COMPUTATION OF GRASSING AREA

DAGORETTI FOREST JUNCTION : Approach Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			AREA
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 000.000								
0 + 020.000	20.00	0.80	0.40	8.00	8.20	4.10	82.00	90.00
0 + 040.000	20.00	0.80	0.80	16.00	18.10	13.15	263.00	279.00
0 + 060.000	20.00	0.40	0.60	12.00	6.90	12.50	250.00	262.00
0 + 080.000	20.00	0.40	0.40	8.00	5.10	6.00	120.00	128.00
0 + 100.000	20.00	1.20	0.80	16.00	3.50	4.30	86.00	102.00
0 + 120.000	20.00	1.90	1.55	31.00	3.90	3.70	74.00	105.00
0 + 140.000	20.00	2.30	2.10	42.00	3.20	3.55	71.00	113.00
0 + 160.000	20.00	1.20	1.75	35.00	8.90	6.05	121.00	156.00
0 + 177.200	17.20	1.20	1.20	20.64	8.90	8.90	153.08	173.72
Box Culvert						4.45	0.00	0.00
0 + 225.600		2.10				0.00	0.00	0.00
0 + 240.000	14.40	2.10	2.10	30.24		0.00	0.00	30.24
0 + 260.000	20.00	1.90	2.00	40.00	3.80	1.90	38.00	78.00
0 + 280.000	20.00	2.20	2.05	41.00	3.30	3.55	71.00	112.00
0 + 300.000	20.00	0.40	1.30	26.00	4.60	3.95	79.00	105.00
0 + 320.000	20.00	0.40	0.40	8.00	2.80	3.70	74.00	82.00
0 + 340.000	20.00	0.80	0.60	12.00	4.20	3.50	70.00	82.00
0 + 360.000	20.00	1.00	0.90	18.00	2.90	3.55	71.00	89.00
0 + 380.000	20.00	0.80	0.90	18.00	2.70	2.80	56.00	74.00
0 + 400.000	20.00	0.40	0.60	12.00	3.00	2.85	57.00	69.00
0 + 420.000	20.00	0.40	0.40	8.00	2.80	2.90	58.00	66.00
0 + 440.000	20.00	0.80	0.60	12.00	2.50	2.65	53.00	65.00
0 + 460.000	20.00	0.80	0.80	16.00	2.80	2.65	53.00	69.00
0 + 465.000	5.00	0.80	0.80	4.00	2.40	2.60	13.00	17.00
Total	416.60	25.10	23.05	433.88	104.50	103.30	1913.08	2346.96

COMPUTATION OF GRASSING AREA

THOGOTO JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		5.50			2.30			
0 + 038.864	18.86	2.00	3.75	70.74	9.00	5.65	106.58	177.32
0 + 040.000	1.14	2.00	2.00	2.27	16.10	12.55	14.26	16.53
0 + 060.000	20.00	2.00	2.00	40.00	16.90	16.50	330.00	370.00
0 + 080.000	20.00	2.00	2.00	40.00	20.80	18.85	377.00	417.00
0 + 095.579	15.58	2.00	2.00	31.16	23.60	22.20	345.85	377.01
0 + 100.000	4.42	2.00	2.00	8.84	24.30	23.95	105.88	114.72
0 + 120.000	20.00	2.00	2.00	40.00	27.60	25.95	519.00	559.00
0 + 140.000	20.00	2.00	2.00	40.00	31.20	29.40	588.00	628.00
0 + 160.000	20.00	2.00	2.00	40.00	32.10	31.65	633.00	673.00
0 + 180.000	20.00	2.00	2.00	40.00	33.00	32.55	651.00	691.00
0 + 200.000	20.00	2.00	2.00	40.00	32.30	32.65	653.00	693.00
0 + 220.000	20.00	2.00	2.00	40.00	29.80	31.05	621.00	661.00
0 + 240.000	20.00	2.00	2.00	40.00	26.10	27.95	559.00	599.00
0 + 260.000	20.00	2.00	2.00	40.00	17.70	21.90	438.00	478.00
0 + 277.500	17.50	0.00	1.00	17.50	0.00	8.85	154.88	172.38
Total	257.50	33.50	30.75	530.51	342.80	341.65	6096.45	6626.96

COMPUTATION OF GRASSING AREA

THOGOTO JUNCTION : B Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		14.50			0.00			
0 + 038.639	18.64	21.20	17.85	332.71	0.00	0.00	0.00	332.71
0 + 040.000	1.36	25.70	23.45	31.92	2.90	1.45	1.97	33.89
0 + 060.000	20.00	25.90	25.80	516.00	0.00	1.45	29.00	545.00
0 + 080.000	20.00	26.60	26.25	525.00	0.00	0.00	0.00	525.00
0 + 100.000	20.00	25.00	25.80	516.00	0.00	0.00	0.00	516.00
0 + 117.805	17.81	23.20	24.10	429.10	0.00	0.00	0.00	429.10
0 + 120.000	2.19	22.80	23.00	50.48	0.00	0.00	0.00	50.48
0 + 140.000	20.00	19.40	21.10	422.00	0.00	0.00	0.00	422.00
0 + 160.000	20.00	16.00	17.70	354.00	0.00	0.00	0.00	354.00
0 + 180.000	20.00	12.30	14.15	283.00	0.00	0.00	0.00	283.00
0 + 200.000	20.00	7.60	9.95	199.00	0.00	0.00	0.00	199.00
0 + 220.000	20.00	3.20	5.40	108.00	5.20	2.60	52.00	160.00
0 + 240.000	20.00	2.00	2.60	52.00	12.30	8.75	175.00	227.00
0 + 260.000	20.00	2.00	2.00	40.00	18.50	15.40	308.00	348.00
0 + 280.000	20.00	2.00	2.00	40.00	22.80	20.65	413.00	453.00
0 + 300.000	20.00	2.00	2.00	40.00	17.40	20.10	402.00	442.00
0 + 320.000	20.00	2.00	2.00	40.00	12.30	14.85	297.00	337.00
0 + 327.000	7.00	0.00	1.00	7.00	0.00	6.15	43.05	50.05
Total	307.00	253.40	246.15	3986.21	91.40	91.40	1721.02	5707.23

COMPUTATION OF GRASSING AREA
THOGOTO JUNCTION : Approach Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 000.000		0.80			5.60			
0 + 020.000	20.00	0.80	0.80	16.00	5.90	5.75	115.00	131.00
0 + 040.000	20.00	0.80	0.80	16.00	5.10	5.50	110.00	126.00
0 + 060.000	20.00	0.80	0.80	16.00	5.30	5.20	104.00	120.00
0 + 080.000	20.00	0.80	0.80	16.00	4.90	5.10	102.00	118.00
0 + 100.000	20.00	0.80	0.80	16.00	5.30	5.10	102.00	118.00
0 + 120.000	20.00	0.80	0.80	16.00	5.30	5.30	106.00	122.00
0 + 140.000	20.00	0.80	0.80	16.00	7.00	6.15	123.00	139.00
0 + 160.000	20.00	0.40	0.60	12.00	2.30	4.65	93.00	105.00
0 + 180.000	20.00	0.40	0.40	8.00	3.30	2.80	56.00	64.00
0 + 200.000	20.00	1.20	0.80	16.00	10.10	6.70	134.00	150.00
0 + 220.000	20.00	0.80	1.00	20.00	10.10	10.10	202.00	222.00
0 + 230.000	10.00	0.80	0.80	8.00	10.10	10.10	101.00	109.00
0 + 240.000	10.00	0.80	0.80	8.00	10.10	10.10	101.00	109.00
0 + 244.857	4.86	0.80	0.80	3.89	10.10	10.10	49.06	52.94
Box Culvert						5.05	0.00	0.00
0 + 271.857		0.80			7.10	3.55	0.00	0.00
0 + 280.000	8.14	0.80	0.80	6.51	7.10	7.10	57.82	64.33
0 + 300.000	20.00	0.80	0.80	16.00	7.10	7.10	142.00	158.00
0 + 320.000	20.00	0.80	0.80	16.00	7.00	7.05	141.00	157.00
0 + 340.000	20.00	0.80	0.80	16.00	10.10	8.55	171.00	187.00
0 + 360.000	20.00	0.80	0.80	16.00	12.50	11.30	226.00	242.00
0 + 380.000	20.00	0.80	0.80	16.00	9.90	11.20	224.00	240.00
0 + 400.000	20.00	1.00	0.90	18.00	12.90	11.40	228.00	246.00
0 + 420.000	20.00	0.40	0.70	14.00	4.90	8.90	178.00	192.00
0 + 440.000	20.00	0.60	0.50	10.00	2.10	3.50	70.00	80.00
0 + 460.000	20.00	1.60	1.10	22.00	4.40	3.25	65.00	87.00
0 + 480.000	20.00	3.50	2.55	51.00	2.70	3.55	71.00	122.00
0 + 500.000	20.00	3.60	3.55	71.00	2.30	2.50	50.00	121.00
Total	473.00	27.90	24.90	460.40	190.60	186.65	3121.87	3582.27

COMPUTATION OF GRASSING AREA
KIKUYU TOWN JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 000.000		5.80			0.60			
0 + 006.586	6.59	5.90	5.85	38.53	0.90	0.75	4.94	43.47
0 + 020.000	13.41	7.60	6.75	90.54	14.60	7.75	103.96	194.50
0 + 040.000	20.00	20.20	13.90	278.00	2.40	8.50	170.00	448.00
0 + 060.000	20.00	16.40	18.30	366.00	2.30	2.35	47.00	413.00
0 + 080.000	20.00	14.80	15.60	312.00	7.10	4.70	94.00	406.00
0 + 100.000	20.00	13.20	14.00	280.00	7.00	7.05	141.00	421.00
0 + 120.000	20.00	11.20	12.20	244.00	7.50	7.25	145.00	389.00
0 + 140.000	20.00	9.00	10.10	202.00	7.30	7.40	148.00	350.00
0 + 160.000	20.00	7.90	8.45	169.00	6.70	7.00	140.00	309.00
0 + 180.000	20.00	5.90	6.90	138.00	6.20	6.45	129.00	267.00
0 + 200.000	20.00	5.70	5.80	116.00	5.40	5.80	116.00	232.00
0 + 213.756	13.76	4.70	5.20	71.53	7.30	6.35	87.35	158.88
0 + 220.000	6.24	4.60	4.65	29.03	7.20	7.25	45.27	74.30
0 + 240.000	20.00	3.30	3.95	79.00	7.70	7.45	149.00	228.00
0 + 260.000	20.00	3.30	3.30	66.00	8.70	8.20	164.00	230.00
0 + 280.000	20.00	3.30	3.30	66.00	8.20	8.45	169.00	235.00
0 + 300.000	20.00	3.30	3.30	66.00	8.80	8.50	170.00	236.00
0 + 320.000	20.00	4.60	3.95	79.00	2.20	5.50	110.00	189.00
0 + 340.000	20.00	3.30	3.95	79.00	6.60	4.40	88.00	167.00
0 + 360.000	20.00	3.30	3.30	66.00	8.00	7.30	146.00	212.00
0 + 380.000	20.00	2.00	2.65	53.00	9.90	8.95	179.00	232.00
0 + 400.000	20.00	2.00	2.00	40.00	9.50	9.70	194.00	234.00
0 + 420.000	20.00	2.00	2.00	40.00	15.10	12.30	246.00	286.00
0 + 440.000	20.00	2.00	2.00	40.00	14.10	14.60	292.00	332.00
0 + 460.000	20.00	2.00	2.00	40.00	16.40	15.25	305.00	345.00
0 + 480.000	20.00	2.00	2.00	40.00	9.70	13.05	261.00	301.00
0 + 500.000	20.00	2.00	2.00	40.00	7.10	8.40	168.00	208.00
0 + 520.000	20.00	2.00	2.00	40.00	9.00	8.05	161.00	201.00
0 + 540.000	20.00	2.00	2.00	40.00	8.60	8.80	176.00	216.00
0 + 560.000	20.00	2.00	2.00	40.00	8.00	8.30	166.00	206.00
0 + 580.000	20.00	2.00	2.00	40.00	7.70	7.85	157.00	197.00
0 + 600.000	20.00	2.00	2.00	40.00	7.90	7.80	156.00	196.00
0 + 620.000	20.00	2.00	2.00	40.00	7.80	7.85	157.00	197.00
0 + 640.000	20.00	2.00	2.00	40.00	7.50	7.65	153.00	193.00
0 + 660.000	20.00	2.00	2.00	40.00	7.20	7.35	147.00	187.00
0 + 680.000	20.00	3.30	2.65	53.00	4.50	5.85	117.00	170.00
0 + 700.000	20.00	4.60	3.95	79.00	1.80	3.15	63.00	142.00
0 + 720.000	20.00	4.70	4.65	93.00	1.00	1.40	28.00	121.00
0 + 740.000	20.00	4.90	4.80	96.00	1.00	1.00	20.00	116.00
0 + 760.000	20.00	4.50	4.70	94.00	0.90	0.95	19.00	113.00
0 + 780.000	20.00	4.50	4.50	90.00	1.10	1.00	20.00	110.00
0 + 800.000	20.00	4.60	4.55	91.00	1.10	1.10	22.00	113.00
0 + 820.000	20.00	4.60	4.60	92.00	1.40	1.25	25.00	117.00
0 + 835.845	15.85	3.30	3.95	62.59	3.50	2.45	38.82	101.41
0 + 840.000	4.15	2.00	2.65	11.01	5.90	4.70	19.53	30.54
0 + 860.000	20.00	2.00	2.00	40.00	5.90	5.90	118.00	158.00
0 + 880.000	20.00	2.00	2.00	40.00	6.10	6.00	120.00	160.00
0 + 899.253	19.25	2.00	2.00	38.51	6.40	6.25	120.33	158.84
0 + 900.000	0.75	2.00	2.00	1.49	6.30	6.35	4.74	6.24
0 + 920.000	20.00	4.70	3.35	67.00	3.00	4.65	93.00	160.00
0 + 931.123	11.12	5.50	5.10	56.73	3.10	3.05	33.93	90.65
0 + 940.000	8.88	7.10	6.30	55.93	3.00	3.05	27.07	83.00
0 + 960.000	20.00	8.50	7.80	156.00	3.20	3.10	62.00	218.00
0 + 980.000	20.00	8.90	8.70	174.00	2.90	3.05	61.00	235.00
1 + 000.000	20.00	6.00	7.45	149.00	2.20	2.55	51.00	200.00
Subtotal	1000.00	277.00	271.10	4988.89	342.50	341.10	6348.94	11337.83

COMPUTATION OF GRASSING AREA
KIKUYU TOWN JUNCTION : A Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
1 + 005.372	5.37	4.90	5.45	29.28	2.20	172.35	925.86	955.14
1 + 020.000	14.63	4.10	4.50	65.83	2.20	2.20	32.18	98.01
1 + 040.000	20.00	2.60	3.35	67.00	2.20	2.20	44.00	111.00
1 + 060.000	20.00	6.20	4.40	88.00	4.20	3.20	64.00	152.00
1 + 080.000	20.00	3.30	4.75	95.00	4.30	4.25	85.00	180.00
1 + 100.000	20.00	2.00	2.65	53.00	7.60	5.95	119.00	172.00
1 + 120.000	20.00	2.00	2.00	40.00	9.00	8.30	166.00	206.00
1 + 140.000	20.00	2.00	2.00	40.00	8.20	8.60	172.00	212.00
1 + 160.000	20.00	2.00	2.00	40.00	12.90	10.55	211.00	251.00
1 + 180.000	20.00	3.30	2.65	53.00	5.50	9.20	184.00	237.00
1 + 200.000	20.00	2.40	2.85	57.00	4.80	5.15	103.00	160.00
1 + 200.508	0.51	2.90	2.65	1.35	4.80	4.80	2.44	3.78
1 + 220.000	19.49	4.80	3.85	75.04	5.70	5.25	102.33	177.38
1 + 240.000	20.00	2.00	3.40	68.00	5.90	5.80	116.00	184.00
1 + 260.000	20.00	2.00	2.00	40.00	6.00	5.95	119.00	159.00
1 + 271.222	11.22	2.90	2.45	27.49	4.60	5.30	59.48	86.97
1 + 280.000	8.78	2.00	2.45	21.51	6.20	5.40	47.40	68.91
1 + 299.173	19.17	3.70	2.85	54.64	2.90	4.55	87.24	141.88
1 + 300.000	0.83	3.90	3.80	3.14	2.90	2.90	2.40	5.54
1 + 320.000	20.00	5.80	4.85	97.00	0.00	1.45	29.00	126.00
1 + 340.000	20.00	6.10	5.95	119.00	0.00	0.00	0.00	119.00
1 + 348.760	8.76	6.00	6.05	53.00	0.00	0.00	0.00	53.00
1 + 360.000	11.24	5.50	5.75	64.63	0.00	0.00	0.00	64.63
1 + 380.000	20.00	4.80	5.15	103.00	0.00	0.00	0.00	103.00
1 + 400.000	20.00	3.60	4.20	84.00	0.00	0.00	0.00	84.00
1 + 420.000	20.00	4.80	4.20	84.00	0.00	0.00	0.00	84.00
1 + 440.000	20.00	14.80	9.80	196.00	1.00	0.50	10.00	206.00
1 + 460.000	20.00	22.30	18.55	371.00	0.80	0.90	18.00	389.00
1 + 468.012	8.01	23.30	22.80	182.67	0.00	0.40	3.20	185.88
1 + 480.000	11.99	23.20	23.25	278.72	0.00	0.00	0.00	278.72
1 + 500.000	20.00	21.10	22.15	443.00	1.00	0.50	10.00	453.00
1 + 520.000	20.00	17.80	19.45	389.00	0.00	0.50	10.00	399.00
1 + 520.313	0.31	0.00	1.00	0.31	0.00	0.00	0.00	0.31
Subtotal	520.31	218.10	213.20	3384.62	104.90	276.15	2722.54	6107.15
Total	1520.31	495.10	484.30	8373.50	447.40	617.25	9071.48	17444.98

COMPUTATION OF GRASSING AREA

KIKUYU TOWN JUNCTION : B Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		6.40						
0 + 040.000	20.00	12.30	9.35	187.00		0.00	0.00	187.00
0 + 061.000	21.00	12.30	12.30	258.30		0.00	0.00	258.30
Total	41.00	31.00	21.65	445.30	0.00	0.00	0.00	445.30

COMPUTATION OF GRASSING AREA
KIKUYU TOWN JUNCTION : C Slip Road

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 020.000		18.00			0.00			
0 + 040.000	20.00	20.60	19.30	386.00	0.00	0.00	0.00	386.00
0 + 044.871	4.87	20.40	20.50	99.86	0.00	0.00	0.00	99.86
0 + 060.000	15.13	19.40	19.90	301.07	0.00	0.00	0.00	301.07
0 + 080.000	20.00	18.20	18.80	376.00	0.00	0.00	0.00	376.00
0 + 100.000	20.00	17.40	17.80	356.00	0.00	0.00	0.00	356.00
0 + 108.359	8.36	14.60	16.00	133.74	0.00	0.00	0.00	133.74
0 + 112.709	4.35	19.70	17.15	74.60	0.00	0.00	0.00	74.60
0 + 120.000	7.29	13.70	16.70	121.76	0.00	0.00	0.00	121.76
0 + 140.000	20.00	12.70	13.20	264.00	0.00	0.00	0.00	264.00
0 + 160.000	20.00	11.60	12.15	243.00	0.00	0.00	0.00	243.00
0 + 169.000	9.00	20.20	15.90	143.10	0.00	0.00	0.00	143.10
Total	149.00	206.50	187.40	2499.13	0.00	0.00	0.00	2499.13

COMPUTATION OF VOLUMES
KIKUYU TOWN JUNCTION : D Slip Road

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH (m2)	AVERAGE (m)	AREA (m2)	LENGTH (m)	AVERAGE (m)	AREA (m2)	(m2)
0 + 000.000		2.00			11.20			
0 + 020.000	20.00	5.20	3.60	72.00	3.70	7.45	149.00	221.00
0 + 040.000	20.00	5.10	5.15	103.00	3.40	3.55	71.00	174.00
0 + 060.000	20.00	4.80	4.95	99.00	3.40	3.40	68.00	167.00
0 + 080.000	20.00	3.30	4.05	81.00	5.80	4.60	92.00	173.00
0 + 100.000	20.00	3.30	3.30	66.00	6.90	6.35	127.00	193.00
0 + 120.000	20.00	2.00	2.65	53.00	9.80	8.35	167.00	220.00
0 + 140.000	20.00	2.00	2.00	40.00	10.10	9.95	199.00	239.00
0 + 160.000	20.00	2.00	2.00	40.00	11.00	10.55	211.00	251.00
0 + 180.000	20.00	2.00	2.00	40.00	10.60	10.80	216.00	256.00
0 + 182.310	2.31	2.00	2.00	4.62	10.90	10.75	24.83	29.45
0 + 200.000	17.69	3.30	2.65	46.88	6.40	8.65	153.02	199.90
0 + 220.000	20.00	3.50	3.40	68.00	6.60	6.50	130.00	198.00
0 + 240.000	20.00	3.30	3.40	68.00	5.80	6.20	124.00	192.00
0 + 260.000	20.00	4.10	3.70	74.00	5.40	5.60	112.00	186.00
0 + 277.864	17.86	3.90	4.00	71.46	5.50	5.45	97.36	168.81
0 + 280.000	2.14	4.00	3.95	8.44	5.30	5.40	11.53	19.97
0 + 300.000	20.00	7.40	5.70	114.00	2.70	4.00	80.00	194.00
0 + 320.000	20.00	6.80	7.10	142.00	2.00	2.35	47.00	189.00
0 + 340.000	20.00	6.40	6.60	132.00	1.40	1.70	34.00	166.00
0 + 360.000	20.00	6.30	6.35	127.00	1.50	1.45	29.00	156.00
0 + 380.000	20.00	6.30	6.30	126.00	1.40	1.45	29.00	155.00
0 + 400.000	20.00	9.10	7.70	154.00	2.40	1.90	38.00	192.00
0 + 420.000	20.00	8.50	8.80	176.00	2.40	2.40	48.00	224.00
0 + 440.000	20.00	8.30	8.40	168.00	0.90	1.65	33.00	201.00
0 + 460.000	20.00	8.30	8.30	166.00	1.00	0.95	19.00	185.00
0 + 480.000	20.00	9.70	9.00	180.00	1.10	1.05	21.00	201.00
0 + 500.000	20.00	10.60	10.15	203.00	1.00	1.05	21.00	224.00
0 + 520.000	20.00	5.50	8.05	161.00	0.90	0.95	19.00	180.00
0 + 540.000	20.00	2.00	3.75	75.00	8.00	4.45	89.00	164.00
0 + 560.000	20.00	2.00	2.00	40.00	7.40	7.70	154.00	194.00
0 + 580.000	20.00	2.00	2.00	40.00	9.30	8.35	167.00	207.00
0 + 583.566	3.57	2.00	2.00	7.13	9.20	9.25	32.99	40.12
0 + 600.000	16.43	2.00	2.00	32.87	11.60	10.40	170.91	203.78
0 + 620.000	20.00	1.00	1.50	30.00	7.60	9.60	192.00	222.00
0 + 640.000	20.00	1.00	1.00	20.00	8.40	8.00	160.00	180.00
0 + 660.000	20.00	2.00	1.50	30.00	12.10	10.25	205.00	235.00
0 + 674.507	14.51	2.00	2.00	29.01	11.20	11.65	169.01	198.02
0 + 680.000	5.49	2.00	2.00	10.99	11.10	11.15	61.25	72.23
0 + 700.000	20.00	2.00	2.00	40.00	9.60	10.35	207.00	247.00
0 + 720.000	20.00	2.00	2.00	40.00	6.40	8.00	160.00	200.00
0 + 740.000	20.00	2.00	2.00	40.00	4.90	5.65	113.00	153.00
0 + 760.000	20.00	1.00	1.50	30.00	4.80	4.85	97.00	127.00
0 + 775.000	15.00	5.80	3.40	51.00	0.00	2.40	36.00	87.00
Total	775.00	179.80	175.90	3300.39	262.10	256.50	4384.90	7685.29