

MASS HAUL  
DIAGRAM

(m³)

0

- 100,000

- 200,000

- 300,000

- 400,000

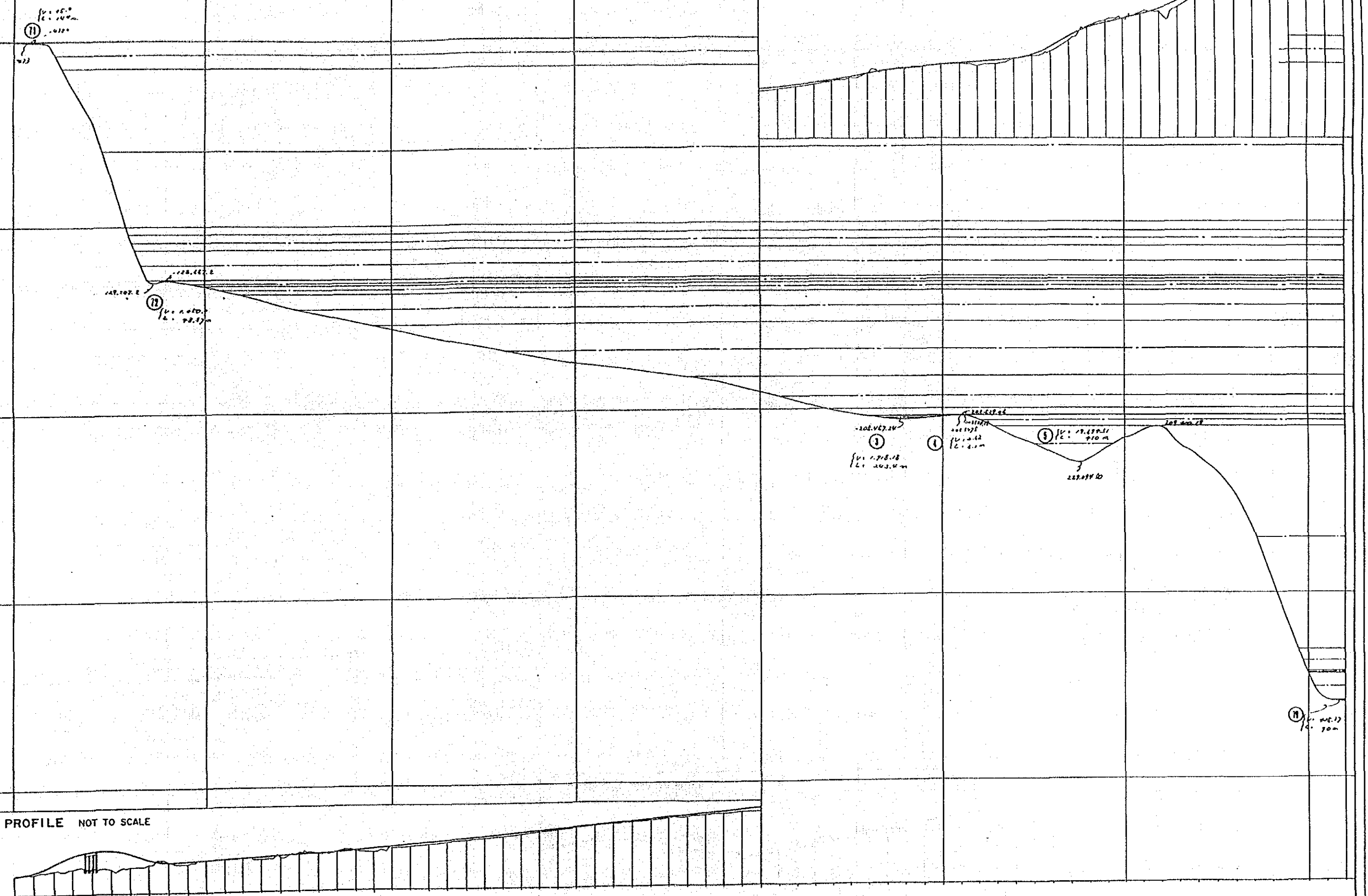
PROFILE NOT TO SCALE

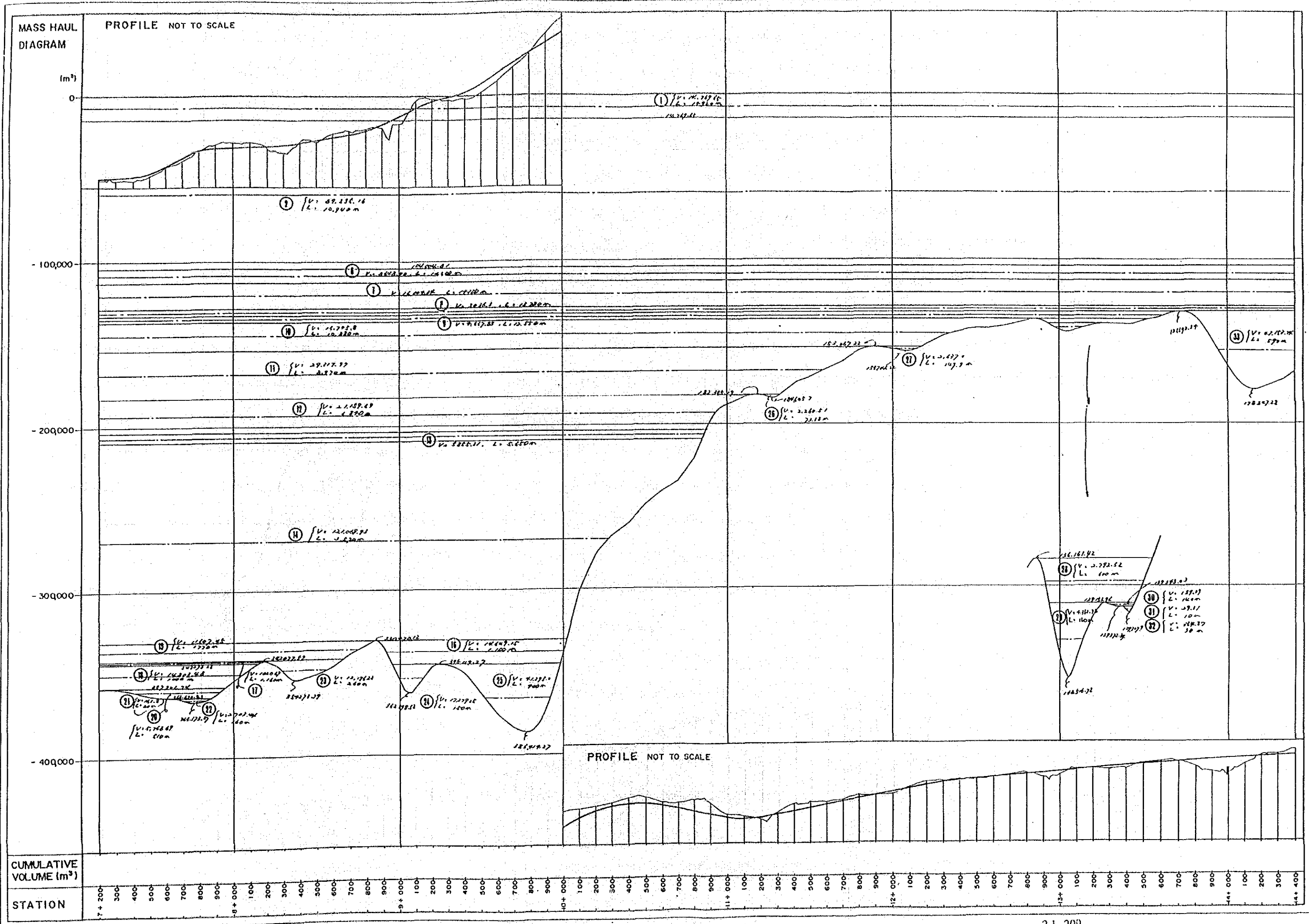
CUMULATIVE  
VOLUME (m³)

STATION

0+000 100 200 300 400 500 600 700 800 900 1+000 100 200 300 400 500 600 700 800 900 2+000 100 200 300 400 500 600 700 800 900 3+000 100 200 300 400 500 600 700 800 900 4+000 100 200 300 400 500 600 700 800 900 5+000 100 200 300 400 500 600 700 800 900 6+000 100 200 300 400 500 600 700 800 900 7+000 100 7+200

PROFILE NOTE TO SCALE





# MASS HAUL DIAGRAM

(m³)

+200,000

+100,000

0

-100,000

-200,000

CUMULATIVE  
VOLUME (m³)

STATION

PROFILE NOT TO SCALE

# MASS HAUL DIAGRAM

(m³)

+ 200,000

+ 100,000

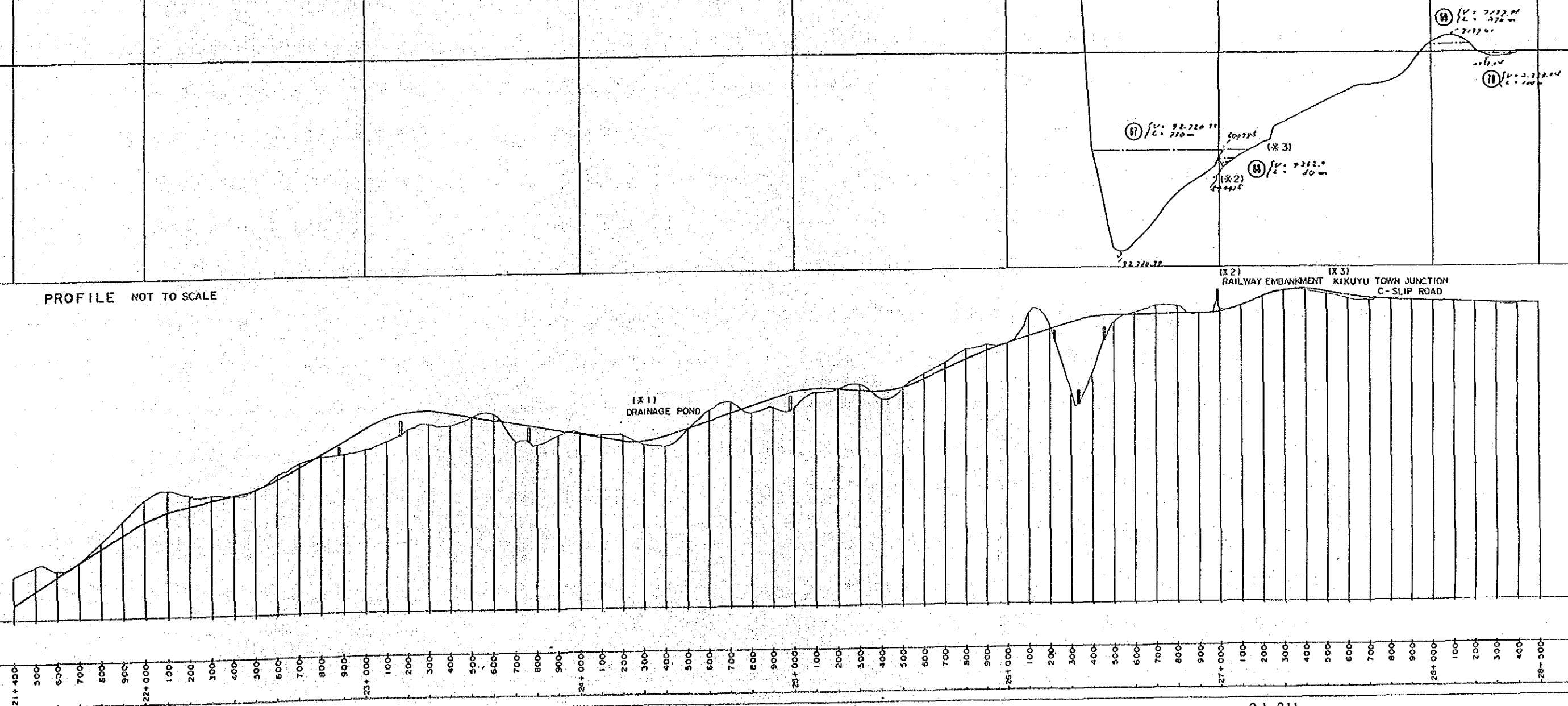
0

- 100,000

PROFILE NOT TO SCALE

CUMULATIVE  
VOLUME (m³)

STATION





## 2.2 Spoil in unsuitable Material

# SCHEDULE OF UNSUITABLE MATERIALS

LOCATION	VOLUME (m3)	REMARKS
MAIN ROAD		
CH.0+000 ~ 5+600	107,132.7	
MOMBASA JUNCTION SLIP ROADS	20,418.4	
NATIONAL PARK BOUNDARY DIKE	24,960.0	
RUBBISH ( CH.8+850 ~ CH.9+30 )	9,741.4	
SUBTOTAL	162,252.5	To be spoiled in spoil bank at Mombasa Road Junction ( Capacity : 165,000m3)
MAIN ROAD		
CH. 11+000 ~ 11+280	4,517.9	
CH.11+420 ~ 11+640	2,498.0	
CH.11+800 ~ 12+200	8,602.0	
CH.12+760 ~ 13+50	1,091.7	
CH.13+740	158.0	
CH.16+240 ~16+980	10,317.6	
SUBTOTAL	27,185.2	To be spoiled beside the road neatly
TOTAL	189,437.7	

### SUMMARY OF SPOIL IN UNSUITABLE MATERIAL

[illegible]



## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
0 + 0.000		8.81					
0 + 20.000	20.000	12.95	10.88	217.60			
0 + 40.000	20.000	17.85	15.40	308.00			
0 + 60.000	20.000	15.72	16.79	335.70			
0 + 80.000	20.000	11.03	13.38	267.50			
0 + 100.000	20.000	7.39	9.21	184.20			
0 + 120.000	20.000	14.16	10.78	215.50			
0 + 140.000	20.000	12.64	13.40	268.00			
0 + 160.000	20.000	23.11	17.88	357.50			
0 + 180.000	20.000	21.91	22.51	450.20			
0 + 200.000	20.000	26.84	24.38	487.50			
0 + 201.588	1.588	26.84	26.84	42.62			
0 + 201.588	0.000	17.65	22.25	0.00			
0 + 220.000	18.412	23.20	20.43	376.07			
0 + 224.687	4.687	23.20	23.20	108.74			
0 + 224.687	0.000	14.69	18.95	0.00			
0 + 240.000	15.313	12.17	13.43	205.65			
0 + 260.000	20.000	16.60	14.39	287.70			
0 + 280.000	20.000	17.37	16.99	339.70			
0 + 300.000	20.000		8.69	173.70			
0 + 307.565	7.565		0.00	0.00			
0 + 307.565	0.000		0.00	0.00			
0 + 318.500	10.935		0.00	0.00			
0 + 320.000	1.500		0.00	0.00			
0 + 340.000	20.000		0.00	0.00			
0 + 360.000	20.000		0.00	0.00			
0 + 368.800	8.800		0.00	0.00			
0 + 380.000	11.200		0.00	0.00			
0 + 400.000	20.000		0.00	0.00			
0 + 420.000	20.000		0.00	0.00			
0 + 426.400	6.400		0.00	0.00			
0 + 440.000	13.600		0.00	0.00			
0 + 447.072	7.072		0.00	0.00			
0 + 460.000	12.928		0.00	0.00			
0 + 480.000	20.000		0.00	0.00			
0 + 500.000	20.000		0.00	0.00			
0 + 516.072	16.072		0.00	0.00			
0 + 516.072	0.000		0.00	0.00			
0 + 520.000	3.928		0.00	0.00			
0 + 537.587	17.587		0.00	0.00			
0 + 537.587	0.000		0.00	0.00			
0 + 540.000	2.413		0.00	0.00			
0 + 560.000	20.000		0.00	0.00			
0 + 580.000	20.000		0.00	0.00			
0 + 600.000	20.000		0.00	0.00			
0 + 611.720	11.720		0.00	0.00			
0 + 611.720	0.000		0.00	0.00			
0 + 620.000	8.280	30.11	15.06	124.66			
0 + 640.000	20.000	27.55	28.83	576.60			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
0 + 660.000	20.000	22.71	25.13	502.60			
0 + 680.000	20.000	16.13	19.42	388.40			
0 + 692.078	12.078	16.13	16.13	194.82			
0 + 692.078	0.000	18.15	17.14	0.00			
0 + 700.000	7.922	31.57	24.86	196.94			
0 + 720.000	20.000	24.33	27.95	559.00			
0 + 740.000	20.000	28.69	26.51	530.20			
0 + 760.000	20.000	28.41	28.55	571.00			
0 + 780.000	20.000	28.90	28.66	573.10			
0 + 800.000	20.000	20.16	24.53	490.60			
0 + 820.000	20.000	16.68	18.42	368.40			
0 + 840.000	20.000	18.52	17.60	352.00			
0 + 860.000	20.000	15.99	17.26	345.10			
0 + 880.000	20.000	23.69	19.84	396.80			
0 + 900.000	20.000	32.20	27.95	558.90			
0 + 920.000	20.000	34.26	33.23	664.60			
0 + 940.000	20.000	38.37	36.32	726.30			
0 + 944.627	4.627	27.90	33.14	153.32			
0 + 960.000	15.373	40.80	34.35	528.06			
0 + 980.000	20.000	34.77	37.79	755.70			
1 + 0.000	20.000	24.02	29.40	587.90			
1 + 20.000	20.000	39.60	31.81	636.20			
1 + 40.000	20.000	38.56	39.08	781.60			
1 + 60.000	20.000	30.18	34.37	687.40			
1 + 73.199	13.199	36.25	33.22	438.40			
1 + 80.000	6.801	35.76	36.01	244.87			
1 + 100.000	20.000	43.14	39.45	789.00			
1 + 120.000	20.000	15.71	29.43	588.50			
1 + 140.000	20.000	22.04	18.88	377.50			
1 + 160.000	20.000	49.80	35.92	718.40			
1 + 180.000	20.000	39.22	44.51	890.20			
1 + 200.000	20.000	26.35	32.79	655.70			
1 + 220.000	20.000	59.58	42.97	859.30			
1 + 240.000	20.000	37.89	48.74	974.70			
1 + 260.000	20.000	19.75	28.82	576.40			
1 + 280.000	20.000	23.87	21.81	436.20			
1 + 300.000	20.000	23.40	23.64	472.70			
1 + 320.000	20.000	27.25	25.33	506.50			
1 + 340.000	20.000	21.96	24.61	492.10			
1 + 360.000	20.000	25.71	23.84	476.70			
1 + 380.000	20.000	34.04	29.88	597.50			
1 + 400.000	20.000	25.99	30.02	600.30			
1 + 420.000	20.000	26.83	26.41	528.20			
1 + 440.000	20.000	40.35	33.59	671.80			
1 + 460.000	20.000	46.43	43.39	867.80			
1 + 480.000	20.000	52.24	49.34	986.70			
1 + 500.000	20.000	59.17	55.71	1,114.10			
1 + 520.000	20.000	70.68	64.93	1,298.50			
1 + 525.443	5.443	72.21	71.45	388.88			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
1 + 540.000	14.557	32.77	52.49	764.10			
1 + 560.000	20.000	22.59	27.68	553.60			
1 + 580.000	20.000	57.00	39.80	795.90			
1 + 600.000	20.000	38.46	47.73	954.60			
1 + 620.000	20.000	36.62	37.54	750.80			
1 + 640.000	20.000	34.92	35.77	715.40			
1 + 660.000	20.000	24.79	29.86	597.10			
1 + 680.000	20.000	18.76	21.78	435.50			
1 + 700.000	20.000	30.28	24.52	490.40			
1 + 720.000	20.000	35.33	32.81	656.10			
1 + 740.000	20.000	25.78	30.56	611.10			
1 + 760.000	20.000	17.59	21.69	433.70			
1 + 780.000	20.000	31.26	24.43	488.50			
1 + 800.000	20.000	28.17	29.72	594.30			
1 + 820.000	20.000	30.16	29.17	583.30			
1 + 840.000	20.000	27.28	28.72	574.40			
1 + 860.000	20.000	28.19	27.74	554.70			
1 + 880.000	20.000	31.55	29.87	597.40			
1 + 900.000	20.000	22.06	26.81	536.10			
1 + 920.000	20.000	20.50	21.28	425.60			
1 + 940.000	20.000	16.01	18.26	365.10			
1 + 960.000	20.000	9.69	12.85	257.00			
1 + 970.243	10.243	6.57	8.13	83.28			
1 + 980.000	9.757	9.67	8.12	79.23			
2 + 0.000	20.000	14.57	12.12	242.40			
2 + 20.000	20.000	14.24	14.41	288.10			
2 + 40.000	20.000	13.92	14.08	281.60			
2 + 60.000	20.000	19.50	16.71	334.20			
2 + 80.000	20.000	24.50	22.00	440.00			
2 + 100.000	20.000	18.93	21.72	434.30			
2 + 120.000	20.000	16.89	17.91	358.20			
2 + 140.000	20.000	16.74	16.82	336.30			
2 + 160.000	20.000	16.98	16.86	337.20			
2 + 180.000	20.000	16.46	16.72	334.40			
2 + 200.000	20.000	15.85	16.16	323.10			
2 + 220.000	20.000	16.10	15.98	319.50			
2 + 240.000	20.000	15.81	15.96	319.10			
2 + 260.000	20.000	18.11	16.96	339.20			
2 + 280.000	20.000	15.40	16.76	335.10			
2 + 300.000	20.000	17.68	16.54	330.80			
2 + 320.000	20.000	16.85	17.27	345.30			
2 + 340.000	20.000	16.83	16.84	336.80			
2 + 360.000	20.000	15.99	16.41	328.20			
2 + 380.000	20.000	15.83	15.91	318.20			
2 + 400.000	20.000	15.12	15.48	309.50			
2 + 420.000	20.000	17.65	16.39	327.70			
2 + 440.000	20.000	16.99	17.32	346.40			
2 + 460.000	20.000	16.61	16.80	336.00			
2 + 480.000	20.000	17.06	16.84	336.70			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
2 + 500.000	20.000	16.77	16.92	338.30			
2 + 520.000	20.000	9.96	13.37	267.30			
2 + 540.000	20.000	16.21	13.09	261.70			
2 + 560.000	20.000	18.01	17.11	342.20			
2 + 580.000	20.000	16.90	17.46	349.10			
2 + 600.000	20.000	18.78	17.84	356.80			
2 + 620.000	20.000	18.76	18.77	375.40			
2 + 640.000	20.000	18.55	18.66	373.10			
2 + 660.000	20.000	17.97	18.26	365.20			
2 + 680.000	20.000	16.51	17.24	344.80			
2 + 700.000	20.000	16.59	16.55	331.00			
2 + 720.000	20.000	17.65	17.12	342.40			
2 + 727.000	7.000	16.26	16.96	118.69			
2 + 740.000	13.000	18.05	17.16	223.02			
2 + 760.000	20.000	16.03	17.04	340.80			
2 + 780.000	20.000	16.37	16.20	324.00			
2 + 800.000	20.000	18.13	17.25	345.00			
2 + 820.000	20.000	17.80	17.97	359.30			
2 + 840.000	20.000	16.75	17.28	345.50			
2 + 860.000	20.000	16.93	16.84	336.80			
2 + 880.000	20.000	16.16	16.55	330.90			
2 + 900.000	20.000	17.33	16.75	334.90			
2 + 920.000	20.000	16.06	16.70	333.90			
2 + 940.000	20.000	19.31	17.69	353.70			
2 + 960.000	20.000	18.57	18.94	378.80			
2 + 980.000	20.000	15.51	17.04	340.80			
3 + 0.000	20.000	16.65	16.08	321.60			
3 + 20.000	20.000	16.56	16.61	332.10			
3 + 40.000	20.000	18.70	17.63	352.60			
3 + 60.000	20.000	13.38	16.04	320.80			
3 + 80.000	20.000	17.58	15.48	309.60			
3 + 100.000	20.000	17.23	17.41	348.10			
3 + 120.000	20.000	16.75	16.99	339.80			
3 + 140.000	20.000	16.23	16.49	329.80			
3 + 160.000	20.000	16.57	16.40	328.00			
3 + 180.000	20.000	18.40	17.49	349.70			
3 + 200.000	20.000	17.52	17.96	359.20			
3 + 220.000	20.000	16.68	17.10	342.00			
3 + 240.000	20.000	15.88	16.28	325.60			
3 + 260.000	20.000	18.33	17.11	342.10			
3 + 280.000	20.000	17.56	17.95	358.90			
3 + 300.000	20.000	17.65	17.61	352.10			
3 + 320.000	20.000	17.82	17.74	354.70			
3 + 340.000	20.000	16.89	17.36	347.10			
3 + 360.000	20.000	17.86	17.38	347.50			
3 + 380.000	20.000	16.92	17.39	347.80			
3 + 400.000	20.000	16.95	16.94	338.70			
3 + 420.000	20.000	18.33	17.64	352.80			
3 + 440.000	20.000	17.77	18.05	361.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
3 + 460.000	20.000	17.94	17.86	357.10			
3 + 480.000	20.000	17.81	17.88	357.50			
3 + 500.000	20.000	16.93	17.37	347.40			
3 + 509.294	9.294	16.44	16.69	155.07			
3 + 520.000	10.706	18.81	17.63	188.69			
3 + 540.000	20.000	16.71	17.76	355.20			
3 + 560.000	20.000	17.59	17.15	343.00			
3 + 580.000	20.000	16.48	17.04	340.70			
3 + 600.000	20.000	16.37	16.43	328.50			
3 + 620.000	20.000	16.59	16.48	329.60			
3 + 640.000	20.000	17.40	17.00	339.90			
3 + 660.000	20.000	17.25	17.33	346.50			
3 + 680.000	20.000	17.74	17.50	349.90			
3 + 700.000	20.000	18.33	18.04	360.70			
3 + 720.000	20.000	17.73	18.03	360.60			
3 + 740.000	20.000	17.59	17.66	353.20			
3 + 760.000	20.000	17.69	17.64	352.80			
3 + 780.000	20.000	14.49	16.09	321.80			
3 + 800.000	20.000	18.15	16.32	326.40			
3 + 820.000	20.000	18.48	18.32	366.30			
3 + 840.000	20.000	17.78	18.13	362.60			
3 + 860.000	20.000	18.12	17.95	359.00			
3 + 880.000	20.000	18.83	18.48	369.50			
3 + 900.000	20.000	18.04	18.44	368.70			
3 + 920.000	20.000	18.04	18.04	360.80			
3 + 940.000	20.000	18.34	18.19	363.80			
3 + 960.000	20.000	19.49	18.92	378.30			
3 + 980.000	20.000	18.89	19.19	383.80			
4 + 0.000	20.000	18.68	18.79	375.70			
4 + 20.000	20.000	17.80	18.24	364.80			
4 + 40.000	20.000	19.14	18.47	369.40			
4 + 60.000	20.000	19.56	19.35	387.00			
4 + 80.000	20.000	17.36	18.46	369.20			
4 + 100.000	20.000	17.52	17.44	348.80			
4 + 120.000	20.000	18.23	17.88	357.50			
4 + 140.000	20.000	19.09	18.66	373.20			
4 + 160.000	20.000	17.42	18.26	365.10			
4 + 180.000	20.000	19.13	18.28	365.50			
4 + 200.000	20.000	20.28	19.71	394.10			
4 + 220.000	20.000	20.09	20.19	403.70			
4 + 240.000	20.000	18.13	19.11	382.20			
4 + 260.000	20.000	17.83	17.98	359.60			
4 + 280.000	20.000	17.94	17.89	357.70			
4 + 300.000	20.000	17.68	17.81	356.20			
4 + 320.000	20.000	18.08	17.88	357.60			
4 + 340.000	20.000	17.67	17.88	357.50			
4 + 360.000	20.000	17.68	17.68	353.50			
4 + 380.000	20.000	15.91	16.80	335.90			
4 + 400.000	20.000	17.03	16.47	329.40			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
4 + 420.000	20.000	19.82	18.43	368.50			
4 + 440.000	20.000	12.81	16.32	326.30			
4 + 460.000	20.000	16.68	14.75	294.90			
4 + 480.000	20.000	18.29	17.49	349.70			
4 + 500.000	20.000	22.30	20.30	405.90			
4 + 520.000	20.000	29.96	26.13	522.60			
4 + 535.215	15.215	23.98	26.97	410.35			
4 + 540.000	4.785	25.47	24.73	118.31			
4 + 560.000	20.000	27.50	26.49	529.70			
4 + 580.000	20.000	49.22	38.36	767.20			
4 + 600.000	20.000	24.55	36.89	737.70			
4 + 620.000	20.000	36.94	30.75	614.90			
4 + 640.000	20.000	39.71	38.33	766.50			
4 + 660.000	20.000	48.10	43.91	878.10			
4 + 680.000	20.000	51.95	50.03	1,000.50			
4 + 700.000	20.000	69.88	60.92	1,218.30			
4 + 720.000	20.000	58.00	63.94	1,278.80			
4 + 740.000	20.000	34.68	46.34	926.80			
4 + 760.000	20.000	31.51	33.10	661.90			
4 + 780.000	20.000	27.87	29.69	593.80			
4 + 800.000	20.000	24.24	26.06	521.10			
4 + 820.000	20.000	33.33	28.79	575.70			
4 + 840.000	20.000	30.82	32.08	641.50			
4 + 860.000	20.000	22.29	26.56	531.10			
4 + 880.000	20.000	26.92	24.61	492.10			
4 + 900.000	20.000	33.83	30.38	607.50			
4 + 910.000	10.000	30.00	31.92	319.15			
4 + 920.000	10.000	28.32	29.16	291.60			
4 + 940.000	20.000	38.55	33.44	668.70			
4 + 960.000	20.000	31.71	35.13	702.60			
4 + 980.000	20.000	21.53	26.62	532.40			
5 + 0.000	20.000	19.58	20.56	411.10			
5 + 20.000	20.000	18.58	19.08	381.60			
5 + 40.000	20.000	14.87	16.73	334.50			
5 + 60.000	20.000	18.13	16.50	330.00			
5 + 80.000	20.000	26.91	22.52	450.40			
5 + 91.257	11.257	22.91	24.91	280.41			
5 + 100.000	8.743	22.62	22.77	199.03			
5 + 120.000	20.000	19.06	20.84	416.80			
5 + 140.000	20.000	16.67	17.87	357.30			
5 + 160.000	20.000	16.05	16.36	327.20			
5 + 180.000	20.000	16.82	16.44	328.70			
5 + 200.000	20.000	18.23	17.53	350.50			
5 + 220.000	20.000	19.60	18.92	378.30			
5 + 240.000	20.000	17.72	18.66	373.20			
5 + 260.000	20.000	18.84	18.28	365.60			
5 + 280.000	20.000	44.33	31.59	631.70			
5 + 291.000	11.000	43.81	44.07	484.77			
5 + 300.000	9.000	45.85	44.83	403.47			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
5 + 320.000	20.000	42.78	44.32	886.30			
5 + 340.000	20.000	43.91	43.35	866.90			
5 + 360.000	20.000	47.09	45.50	910.00			
5 + 380.000	20.000	43.41	45.25	905.00			
5 + 400.000	20.000	43.34	43.38	867.50			
5 + 420.000	20.000	42.23	42.79	855.70			
5 + 440.000	20.000	42.62	42.43	848.50			
5 + 460.000	20.000	40.07	41.35	826.90			
5 + 480.000	20.000	39.18	39.63	792.50			
5 + 500.000	20.000	37.01	38.10	761.90			
5 + 520.000	20.000	39.26	38.14	762.70			
5 + 540.000	20.000	34.56	36.91	738.20			
5 + 560.000	20.000	44.34	39.45	789.00			
5 + 580.000	20.000	39.94	42.14	842.80			
5 + 600.000	20.000	20.76	30.35	607.00			
5 + 617.777	17.777		10.38	184.53			
5 + 620.000	2.223		0.00	0.00			
5 + 640.000	20.000		0.00	0.00			
5 + 660.000	20.000		0.00	0.00			
5 + 680.000	20.000		0.00	0.00			
5 + 700.000	20.000		0.00	0.00			
5 + 720.000	20.000		0.00	0.00			
5 + 740.000	20.000		0.00	0.00			
5 + 760.000	20.000		0.00	0.00			
5 + 780.000	20.000		0.00	0.00			
5 + 800.000	20.000		0.00	0.00			
5 + 817.000	17.000		0.00	0.00			
5 + 820.000	3.000		0.00	0.00			
5 + 840.000	20.000		0.00	0.00			
5 + 860.000	20.000		0.00	0.00			
5 + 880.000	20.000		0.00	0.00			
5 + 900.000	20.000		0.00	0.00			
5 + 920.000	20.000		0.00	0.00			
5 + 940.000	20.000		0.00	0.00			
5 + 960.000	20.000		0.00	0.00			
5 + 980.000	20.000		0.00	0.00			
6 + 0.000	20.000		0.00	0.00			
6 + 1.864	1.864		0.00	0.00			
6 + 20.000	18.136		0.00	0.00			
6 + 40.000	20.000		0.00	0.00			
6 + 60.000	20.000		0.00	0.00			
6 + 80.000	20.000		0.00	0.00			
6 + 100.000	20.000		0.00	0.00			
6 + 120.000	20.000		0.00	0.00			
6 + 140.000	20.000		0.00	0.00			
6 + 160.000	20.000		0.00	0.00			
6 + 180.000	20.000		0.00	0.00			
6 + 200.000	20.000		0.00	0.00			
6 + 220.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
6 + 240.000	20.000		0.00	0.00			
6 + 260.000	20.000		0.00	0.00			
6 + 280.000	20.000		0.00	0.00			
6 + 300.000	20.000		0.00	0.00			
6 + 320.000	20.000		0.00	0.00			
6 + 340.000	20.000		0.00	0.00			
6 + 360.000	20.000		0.00	0.00			
6 + 379.176	19.176		0.00	0.00			
6 + 380.000	0.824		0.00	0.00			
6 + 400.000	20.000		0.00	0.00			
6 + 420.000	20.000		0.00	0.00			
6 + 429.957	9.957		0.00	0.00			
6 + 429.957	0.000		0.00	0.00			
6 + 440.000	10.043		0.00	0.00			
6 + 460.000	20.000		0.00	0.00			
6 + 462.691	2.691		0.00	0.00			
6 + 462.691	0.000		0.00	0.00			
6 + 480.000	17.309		0.00	0.00			
6 + 500.000	20.000		0.00	0.00			
6 + 520.000	20.000		0.00	0.00			
6 + 540.000	20.000		0.00	0.00			
6 + 560.000	20.000		0.00	0.00			
6 + 580.000	20.000		0.00	0.00			
6 + 600.000	20.000		0.00	0.00			
6 + 620.000	20.000		0.00	0.00			
6 + 640.000	20.000		0.00	0.00			
6 + 660.000	20.000		0.00	0.00			
6 + 675.890	15.890		0.00	0.00			
6 + 680.000	4.110		0.00	0.00			
6 + 700.000	20.000		0.00	0.00			
6 + 714.490	14.490		0.00	0.00			
6 + 720.000	5.510		0.00	0.00			
6 + 740.000	20.000		0.00	0.00			
6 + 760.000	20.000		0.00	0.00			
6 + 780.000	20.000		0.00	0.00			
6 + 800.000	20.000		0.00	0.00			
6 + 820.000	20.000		0.00	0.00			
6 + 840.000	20.000		0.00	0.00			
6 + 860.000	20.000		0.00	0.00			
6 + 880.000	20.000		0.00	0.00			
6 + 900.000	20.000		0.00	0.00			
6 + 920.000	20.000		0.00	0.00			
6 + 940.000	20.000		0.00	0.00			
6 + 960.000	20.000		0.00	0.00			
6 + 980.000	20.000		0.00	0.00			
7 + 0.000	20.000		0.00	0.00			
7 + 20.000	20.000		0.00	0.00			
7 + 28.438	8.438		0.00	0.00			
7 + 40.000	11.562		0.00	0.00			



## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
7 + 60.000	20.000		0.00	0.00			
7 + 80.000	20.000		0.00	0.00			
7 + 100.000	20.000		0.00	0.00			
7 + 120.000	20.000		0.00	0.00			
7 + 140.000	20.000		0.00	0.00			
7 + 160.000	20.000		0.00	0.00			
7 + 180.000	20.000		0.00	0.00			
7 + 200.000	20.000		0.00	0.00			
7 + 220.000	20.000		0.00	0.00			
7 + 240.000	20.000		0.00	0.00			
7 + 260.000	20.000		0.00	0.00			
7 + 280.000	20.000		0.00	0.00			
7 + 300.000	20.000		0.00	0.00			
7 + 320.000	20.000		0.00	0.00			
7 + 340.000	20.000		0.00	0.00			
7 + 360.000	20.000		0.00	0.00			
7 + 380.000	20.000		0.00	0.00			
7 + 400.000	20.000		0.00	0.00			
7 + 420.000	20.000		0.00	0.00			
7 + 440.000	20.000		0.00	0.00			
7 + 450.000	10.000		0.00	0.00			
7 + 460.000	10.000		0.00	0.00			
7 + 480.000	20.000		0.00	0.00			
7 + 500.000	20.000		0.00	0.00			
7 + 520.000	20.000		0.00	0.00			
7 + 540.000	20.000		0.00	0.00			
7 + 560.000	20.000		0.00	0.00			
7 + 580.000	20.000		0.00	0.00			
7 + 600.000	20.000		0.00	0.00			
7 + 600.107	0.107		0.00	0.00			
7 + 620.000	19.893		0.00	0.00			
7 + 640.000	20.000		0.00	0.00			
7 + 660.000	20.000		0.00	0.00			
7 + 680.000	20.000		0.00	0.00			
7 + 700.000	20.000		0.00	0.00			
7 + 720.000	20.000		0.00	0.00			
7 + 740.000	20.000		0.00	0.00			
7 + 760.000	20.000		0.00	0.00			
7 + 780.000	20.000		0.00	0.00			
7 + 800.000	20.000		0.00	0.00			
7 + 820.000	20.000		0.00	0.00			
7 + 840.000	20.000		0.00	0.00			
7 + 860.000	20.000		0.00	0.00			
7 + 880.000	20.000		0.00	0.00			
7 + 900.000	20.000		0.00	0.00			
7 + 920.000	20.000		0.00	0.00			
7 + 940.000	20.000		0.00	0.00			
7 + 960.000	20.000		0.00	0.00			
7 + 980.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
8 + 0.000	20.000		0.00	0.00			
8 + 20.000	20.000		0.00	0.00			
8 + 40.000	20.000		0.00	0.00			
8 + 60.000	20.000		0.00	0.00			
8 + 80.000	20.000		0.00	0.00			
8 + 100.000	20.000		0.00	0.00			
8 + 120.000	20.000		0.00	0.00			
8 + 140.000	20.000		0.00	0.00			
8 + 153.505	13.505		0.00	0.00			
8 + 160.000	6.495		0.00	0.00			
8 + 180.000	20.000		0.00	0.00			
8 + 200.000	20.000		0.00	0.00			
8 + 220.000	20.000		0.00	0.00			
8 + 240.000	20.000		0.00	0.00			
8 + 260.000	20.000		0.00	0.00			
8 + 280.000	20.000		0.00	0.00			
8 + 300.000	20.000		0.00	0.00			
8 + 303.505	3.505		0.00	0.00			
8 + 320.000	16.495		0.00	0.00			
8 + 340.000	20.000		0.00	0.00			
8 + 358.544	18.544		0.00	0.00			
8 + 360.000	1.456		0.00	0.00			
8 + 380.000	20.000		0.00	0.00			
8 + 400.000	20.000		0.00	0.00			
8 + 420.000	20.000		0.00	0.00			
8 + 440.000	20.000		0.00	0.00			
8 + 460.000	20.000		0.00	0.00			
8 + 480.000	20.000		0.00	0.00			
8 + 500.000	20.000		0.00	0.00			
8 + 520.000	20.000		0.00	0.00			
8 + 540.000	20.000		0.00	0.00			
8 + 560.000	20.000		0.00	0.00			
8 + 580.000	20.000		0.00	0.00			
8 + 600.000	20.000		0.00	0.00			
8 + 608.544	8.544		0.00	0.00			
8 + 620.000	11.456		0.00	0.00			
8 + 640.000	20.000		0.00	0.00			
8 + 660.000	20.000		0.00	0.00			
8 + 680.000	20.000		0.00	0.00			
8 + 700.000	20.000		0.00	0.00			
8 + 720.000	20.000		0.00	0.00			
8 + 740.000	20.000		0.00	0.00			
8 + 760.000	20.000		0.00	0.00			
8 + 780.000	20.000		0.00	0.00			
8 + 800.000	20.000		0.00	0.00			
8 + 820.000	20.000		0.00	0.00			
8 + 840.000	20.000		0.00	0.00			
8 + 860.000	20.000		0.00	0.00	12.40		
8 + 875.638	15.638		0.00	0.00	16.62	14.51	226.91

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
8 + 880.000	4.362		0.00	0.00	20.10	18.36	80.09
8 + 900.000	20.000		0.00	0.00	19.40	19.75	395.00
8 + 920.000	20.000		0.00	0.00		9.70	194.00
8 + 940.000	20.000		0.00	0.00		0.00	0.00
8 + 960.000	20.000		0.00	0.00	100.50	50.25	1,005.00
8 + 980.000	20.000		0.00	0.00	112.19	106.35	2,126.90
9 + 0.000	20.000		0.00	0.00	112.81	112.50	2,250.00
9 + 20.000	20.000		0.00	0.00	116.77	114.79	2,295.80
9 + 40.000	20.000		0.00	0.00		58.39	1,167.70
9 + 60.000	20.000		0.00	0.00			
9 + 80.000	20.000		0.00	0.00			
9 + 100.000	20.000		0.00	0.00			
9 + 120.000	20.000		0.00	0.00			
9 + 125.638	5.638		0.00	0.00			
9 + 140.000	14.362		0.00	0.00			
9 + 160.000	20.000		0.00	0.00			
9 + 180.000	20.000		0.00	0.00			
9 + 200.000	20.000		0.00	0.00			
9 + 220.000	20.000		0.00	0.00			
9 + 240.000	20.000		0.00	0.00			
9 + 260.000	20.000		0.00	0.00			
9 + 275.638	15.638		0.00	0.00			
9 + 280.000	4.362		0.00	0.00			
9 + 300.000	20.000		0.00	0.00			
9 + 320.000	20.000		0.00	0.00			
9 + 340.000	20.000		0.00	0.00			
9 + 360.000	20.000		0.00	0.00			
9 + 380.000	20.000		0.00	0.00			
9 + 400.000	20.000		0.00	0.00			
9 + 420.000	20.000		0.00	0.00			
9 + 440.000	20.000		0.00	0.00			
9 + 460.000	20.000		0.00	0.00			
9 + 480.000	20.000		0.00	0.00			
9 + 500.000	20.000		0.00	0.00			
9 + 520.000	20.000		0.00	0.00			
9 + 540.000	20.000		0.00	0.00			
9 + 560.000	20.000		0.00	0.00			
9 + 580.000	20.000		0.00	0.00			
9 + 600.000	20.000		0.00	0.00			
9 + 620.000	20.000		0.00	0.00			
9 + 640.000	20.000		0.00	0.00			
9 + 660.000	20.000		0.00	0.00			
9 + 680.000	20.000		0.00	0.00			
9 + 700.000	20.000		0.00	0.00			
9 + 720.000	20.000		0.00	0.00			
9 + 740.000	20.000		0.00	0.00			
9 + 760.000	20.000		0.00	0.00			
9 + 780.000	20.000		0.00	0.00			
9 + 783.604	3.604		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
9 + 800.000	16.396		0.00	0.00			
9 + 820.000	20.000		0.00	0.00			
9 + 840.000	20.000		0.00	0.00			
9 + 860.000	20.000		0.00	0.00			
9 + 880.000	20.000		0.00	0.00			
9 + 900.000	20.000		0.00	0.00			
9 + 920.000	20.000		0.00	0.00			
9 + 940.000	20.000		0.00	0.00			
9 + 960.000	20.000		0.00	0.00			
9 + 980.000	20.000		0.00	0.00			
10 + 0.000	20.000		0.00	0.00			
10 + 20.000	20.000		0.00	0.00			
10 + 40.000	20.000		0.00	0.00			
10 + 60.000	20.000		0.00	0.00			
10 + 80.000	20.000		0.00	0.00			
10 + 83.604	3.604		0.00	0.00			
10 + 100.000	16.396		0.00	0.00			
10 + 120.000	20.000		0.00	0.00			
10 + 140.000	20.000		0.00	0.00			
10 + 160.000	20.000		0.00	0.00			
10 + 180.000	20.000		0.00	0.00			
10 + 200.000	20.000		0.00	0.00			
10 + 220.000	20.000		0.00	0.00			
10 + 240.000	20.000		0.00	0.00			
10 + 260.000	20.000		0.00	0.00			
10 + 280.000	20.000		0.00	0.00			
10 + 300.000	20.000		0.00	0.00			
10 + 320.000	20.000		0.00	0.00			
10 + 340.000	20.000		0.00	0.00			
10 + 360.000	20.000		0.00	0.00			
10 + 380.000	20.000		0.00	0.00			
10 + 400.000	20.000		0.00	0.00			
10 + 415.887	15.887		0.00	0.00			
10 + 420.000	4.113		0.00	0.00			
10 + 440.000	20.000		0.00	0.00			
10 + 460.000	20.000		0.00	0.00			
10 + 480.000	20.000		0.00	0.00			
10 + 500.000	20.000		0.00	0.00			
10 + 520.000	20.000		0.00	0.00			
10 + 540.000	20.000		0.00	0.00			
10 + 560.000	20.000		0.00	0.00			
10 + 565.887	5.887		0.00	0.00			
10 + 580.000	14.113		0.00	0.00			
10 + 600.000	20.000		0.00	0.00			
10 + 620.000	20.000		0.00	0.00			
10 + 640.000	20.000		0.00	0.00			
10 + 660.000	20.000		0.00	0.00			
10 + 680.000	20.000		0.00	0.00			
10 + 700.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
10 + 715.887	15.887		0.00	0.00			
10 + 720.000	4.113		0.00	0.00			
10 + 740.000	20.000		0.00	0.00			
10 + 760.000	20.000		0.00	0.00			
10 + 780.000	20.000		0.00	0.00			
10 + 800.000	20.000		0.00	0.00			
10 + 820.000	20.000		0.00	0.00			
10 + 840.000	20.000		0.00	0.00			
10 + 860.000	20.000		0.00	0.00			
10 + 880.000	20.000		0.00	0.00			
10 + 900.000	20.000		0.00	0.00			
10 + 920.000	20.000		0.00	0.00			
10 + 940.000	20.000		0.00	0.00			
10 + 960.000	20.000		0.00	0.00			
10 + 963.121	3.121		0.00	0.00			
10 + 980.000	16.879		0.00	0.00			
11 + 0.000	20.000	11.20	5.60	112.00			
11 + 20.000	20.000	15.30	13.25	265.00			
11 + 40.000	20.000	26.30	20.80	416.00			
11 + 60.000	20.000	30.00	28.15	563.00			
11 + 80.000	20.000	16.70	23.35	467.00			
11 + 100.000	20.000	17.80	17.25	345.00			
11 + 113.121	13.121	16.50	17.15	225.03			
11 + 120.000	6.879	16.50	16.50	113.50			
11 + 140.000	20.000	16.50	16.50	330.00			
11 + 160.000	20.000	17.10	16.80	336.00			
11 + 180.000	20.000	17.50	17.30	346.00			
11 + 200.000	20.000	18.80	18.15	363.00			
11 + 220.000	20.000	9.20	14.00	280.00			
11 + 240.000	20.000	9.90	9.55	191.00			
11 + 260.000	20.000	2.80	6.35	127.00			
11 + 263.121	3.121	3.40	3.10	9.68			
11 + 280.000	16.879		1.70	28.69			
11 + 300.000	20.000		0.00	0.00			
11 + 320.000	20.000		0.00	0.00			
11 + 340.000	20.000		0.00	0.00			
11 + 360.000	20.000		0.00	0.00			
11 + 380.000	20.000		0.00	0.00			
11 + 400.000	20.000		0.00	0.00			
11 + 420.000	20.000		0.00	0.00			
11 + 422.939	2.939	5.60	2.80	8.23			
11 + 440.000	17.061	3.30	4.45	75.92			
11 + 460.000	20.000	11.20	7.25	145.00			
11 + 480.000	20.000	5.50	8.35	167.00			
11 + 500.000	20.000	10.30	7.90	158.00			
11 + 520.000	20.000	15.40	12.85	257.00			
11 + 540.000	20.000	14.90	15.15	303.00			
11 + 560.000	20.000	17.30	16.10	322.00			
11 + 572.939	12.939	15.00	16.15	208.96			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
11 + 580.000	7.061	19.80	17.40	122.86			
11 + 600.000	20.000	11.90	15.85	317.00			
11 + 620.000	20.000	9.40	10.65	213.00			
11 + 640.000	20.000	5.30	7.35	147.00			
11 + 660.000	20.000		2.65	53.00			
11 + 680.000	20.000		0.00	0.00			
11 + 700.000	20.000		0.00	0.00			
11 + 720.000	20.000		0.00	0.00			
11 + 740.000	20.000		0.00	0.00			
11 + 760.000	20.000		0.00	0.00			
11 + 780.000	20.000		0.00	0.00			
11 + 800.000	20.000	16.70	8.35	167.00			
11 + 820.000	20.000	15.60	16.15	323.00			
11 + 840.000	20.000	18.60	17.10	342.00			
11 + 860.000	20.000	18.20	18.40	368.00			
11 + 880.000	20.000	20.70	19.45	389.00			
11 + 900.000	20.000	23.30	22.00	440.00			
11 + 920.000	20.000	22.90	23.10	462.00			
11 + 940.000	20.000	19.10	21.00	420.00			
11 + 960.000	20.000	16.30	17.70	354.00			
11 + 980.000	20.000	16.70	16.50	330.00			
12 + 0.000	20.000	14.40	15.55	311.00			
12 + 20.000	20.000	16.80	15.60	312.00			
12 + 40.000	20.000	19.70	18.25	365.00			
12 + 60.000	20.000	20.60	20.15	403.00			
12 + 80.000	20.000	26.70	23.65	473.00			
12 + 100.000	20.000	24.20	25.45	509.00			
12 + 120.000	20.000	25.40	24.80	496.00			
12 + 140.000	20.000	31.90	28.65	573.00			
12 + 160.000	20.000	24.20	28.05	561.00			
12 + 180.000	20.000	20.50	22.35	447.00			
12 + 200.000	20.000	17.60	19.05	381.00			
12 + 220.000	20.000		8.80	176.00			
12 + 240.000	20.000		0.00	0.00			
12 + 260.000	20.000		0.00	0.00			
12 + 280.000	20.000		0.00	0.00			
12 + 300.000	20.000		0.00	0.00			
12 + 320.000	20.000		0.00	0.00			
12 + 340.000	20.000		0.00	0.00			
12 + 360.000	20.000		0.00	0.00			
12 + 380.000	20.000		0.00	0.00			
12 + 400.000	20.000		0.00	0.00			
12 + 420.000	20.000		0.00	0.00			
12 + 440.000	20.000		0.00	0.00			
12 + 460.000	20.000		0.00	0.00			
12 + 480.000	20.000		0.00	0.00			
12 + 500.000	20.000		0.00	0.00			
12 + 520.000	20.000		0.00	0.00			
12 + 540.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
12 + 555.218	15.218		0.00	0.00			
12 + 560.000	4.782		0.00	0.00			
12 + 580.000	20.000		0.00	0.00			
12 + 600.000	20.000		0.00	0.00			
12 + 620.000	20.000		0.00	0.00			
12 + 640.000	20.000		0.00	0.00			
12 + 660.000	20.000		0.00	0.00			
12 + 680.000	20.000		0.00	0.00			
12 + 700.000	20.000		0.00	0.00			
12 + 705.272	5.272		0.00	0.00			
12 + 720.000	14.728		0.00	0.00			
12 + 740.000	20.000		0.00	0.00			
12 + 760.000	20.000	8.60	4.30	86.00			
12 + 780.000	20.000	8.80	8.70	174.00			
12 + 800.000	20.000	4.90	6.85	137.00			
12 + 820.000	20.000	4.80	4.85	97.00			
12 + 840.000	20.000	5.30	5.05	101.00			
12 + 860.000	20.000	1.90	3.60	72.00			
12 + 880.000	20.000	1.90	1.90	38.00			
12 + 896.298	16.298	5.00	3.45	56.23			
12 + 900.000	3.702	4.00	4.50	16.66			
12 + 920.000	20.000		2.00	40.00			
12 + 940.000	20.000		0.00	0.00			
12 + 960.000	20.000		0.00	0.00			
12 + 980.000	20.000		0.00	0.00			
13 + 0.000	20.000	2.10	1.05	21.00			
13 + 20.000	20.000	5.70	3.90	78.00			
13 + 40.000	20.000	4.40	5.05	101.00			
13 + 46.298	6.298	6.00	5.20	32.75			
13 + 60.000	13.702		3.00	41.11			
13 + 80.000	20.000		0.00	0.00			
13 + 100.000	20.000		0.00	0.00			
13 + 120.000	20.000		0.00	0.00			
13 + 140.000	20.000		0.00	0.00			
13 + 160.000	20.000		0.00	0.00			
13 + 180.000	20.000		0.00	0.00			
13 + 200.000	20.000		0.00	0.00			
13 + 220.000	20.000		0.00	0.00			
13 + 240.000	20.000		0.00	0.00			
13 + 260.000	20.000		0.00	0.00			
13 + 280.000	20.000		0.00	0.00			
13 + 300.000	20.000		0.00	0.00			
13 + 320.000	20.000		0.00	0.00			
13 + 340.000	20.000		0.00	0.00			
13 + 360.000	20.000		0.00	0.00			
13 + 380.000	20.000		0.00	0.00			
13 + 400.000	20.000		0.00	0.00			
13 + 420.000	20.000		0.00	0.00			
13 + 440.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
13 + 460.000	20.000		0.00	0.00			
13 + 480.000	20.000		0.00	0.00			
13 + 484.164	4.164		0.00	0.00			
13 + 500.000	15.836		0.00	0.00			
13 + 520.000	20.000		0.00	0.00			
13 + 540.000	20.000		0.00	0.00			
13 + 560.000	20.000		0.00	0.00			
13 + 580.000	20.000		0.00	0.00			
13 + 600.000	20.000		0.00	0.00			
13 + 606.664	6.664		0.00	0.00			
13 + 620.000	13.336		0.00	0.00			
13 + 640.000	20.000		0.00	0.00			
13 + 660.000	20.000		0.00	0.00			
13 + 680.000	20.000		0.00	0.00			
13 + 700.000	20.000		0.00	0.00			
13 + 720.000	20.000		0.00	0.00			
13 + 740.000	20.000	7.90	3.95	79.00			
13 + 760.000	20.000		3.95	79.00			
13 + 780.000	20.000		0.00	0.00			
13 + 800.000	20.000		0.00	0.00			
13 + 820.000	20.000		0.00	0.00			
13 + 840.000	20.000		0.00	0.00			
13 + 860.000	20.000		0.00	0.00			
13 + 880.000	20.000		0.00	0.00			
13 + 900.000	20.000		0.00	0.00			
13 + 920.000	20.000		0.00	0.00			
13 + 924.397	4.397		0.00	0.00			
13 + 940.000	15.603		0.00	0.00			
13 + 960.000	20.000		0.00	0.00			
13 + 980.000	20.000		0.00	0.00			
14 + 0.000	20.000		0.00	0.00			
14 + 20.000	20.000		0.00	0.00			
14 + 40.000	20.000		0.00	0.00			
14 + 46.897	6.897		0.00	0.00			
14 + 60.000	13.103		0.00	0.00			
14 + 80.000	20.000		0.00	0.00			
14 + 100.000	20.000		0.00	0.00			
14 + 120.000	20.000		0.00	0.00			
14 + 140.000	20.000		0.00	0.00			
14 + 160.000	20.000		0.00	0.00			
14 + 180.000	20.000		0.00	0.00			
14 + 200.000	20.000		0.00	0.00			
14 + 220.000	20.000		0.00	0.00			
14 + 240.000	20.000		0.00	0.00			
14 + 260.000	20.000		0.00	0.00			
14 + 280.000	20.000		0.00	0.00			
14 + 300.000	20.000		0.00	0.00			
14 + 320.000	20.000		0.00	0.00			
14 + 340.000	20.000		0.00	0.00			



## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
14 + 360.000	20.000		0.00	0.00			
14 + 380.000	20.000		0.00	0.00			
14 + 400.000	20.000		0.00	0.00			
14 + 420.000	20.000		0.00	0.00			
14 + 440.000	20.000		0.00	0.00			
14 + 460.000	20.000		0.00	0.00			
14 + 480.000	20.000		0.00	0.00			
14 + 500.000	20.000		0.00	0.00			
14 + 520.000	20.000		0.00	0.00			
14 + 540.000	20.000		0.00	0.00			
14 + 560.000	20.000		0.00	0.00			
14 + 580.000	20.000		0.00	0.00			
14 + 595.083	15.083		0.00	0.00			
14 + 600.000	4.917		0.00	0.00			
14 + 620.000	20.000		0.00	0.00			
14 + 640.000	20.000		0.00	0.00			
14 + 660.000	20.000		0.00	0.00			
14 + 680.000	20.000		0.00	0.00			
14 + 700.000	20.000		0.00	0.00			
14 + 720.000	20.000		0.00	0.00			
14 + 740.000	20.000		0.00	0.00			
14 + 745.083	5.083		0.00	0.00			
14 + 760.000	14.917		0.00	0.00			
14 + 780.000	20.000		0.00	0.00			
14 + 800.000	20.000		0.00	0.00			
14 + 820.000	20.000		0.00	0.00			
14 + 840.000	20.000		0.00	0.00			
14 + 860.000	20.000		0.00	0.00			
14 + 865.086	5.086		0.00	0.00			
14 + 880.000	14.914		0.00	0.00			
14 + 900.000	20.000		0.00	0.00			
14 + 920.000	20.000		0.00	0.00			
14 + 940.000	20.000		0.00	0.00			
14 + 960.000	20.000		0.00	0.00			
14 + 980.000	20.000		0.00	0.00			
15 + 0.000	20.000		0.00	0.00			
15 + 15.086	15.086		0.00	0.00			
15 + 20.000	4.914		0.00	0.00			
15 + 40.000	20.000		0.00	0.00			
15 + 60.000	20.000		0.00	0.00			
15 + 80.000	20.000		0.00	0.00			
15 + 100.000	20.000		0.00	0.00			
15 + 120.000	20.000		0.00	0.00			
15 + 140.000	20.000		0.00	0.00			
15 + 160.000	20.000		0.00	0.00			
15 + 165.086	5.086		0.00	0.00			
15 + 180.000	14.914		0.00	0.00			
15 + 200.000	20.000		0.00	0.00			
15 + 220.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
15 + 240.000	20.000		0.00	0.00			
15 + 260.000	20.000		0.00	0.00			
15 + 280.000	20.000		0.00	0.00			
15 + 300.000	20.000		0.00	0.00			
15 + 320.000	20.000		0.00	0.00			
15 + 340.000	20.000		0.00	0.00			
15 + 360.000	20.000		0.00	0.00			
15 + 372.375	12.375		0.00	0.00			
15 + 380.000	7.625		0.00	0.00			
15 + 400.000	20.000		0.00	0.00			
15 + 420.000	20.000		0.00	0.00			
15 + 440.000	20.000		0.00	0.00			
15 + 460.000	20.000		0.00	0.00			
15 + 480.000	20.000		0.00	0.00			
15 + 484.875	4.875		0.00	0.00			
15 + 500.000	20.000		0.00	0.00			
15 + 520.000	20.000		0.00	0.00			
15 + 540.000	20.000		0.00	0.00			
15 + 560.000	20.000		0.00	0.00			
15 + 580.000	20.000		0.00	0.00			
15 + 600.000	20.000		0.00	0.00			
15 + 620.000	20.000		0.00	0.00			
15 + 640.000	20.000		0.00	0.00			
15 + 660.000	20.000		0.00	0.00			
15 + 680.000	20.000		0.00	0.00			
15 + 700.000	20.000		0.00	0.00			
15 + 720.000	20.000		0.00	0.00			
15 + 740.000	20.000		0.00	0.00			
15 + 760.000	20.000		0.00	0.00			
15 + 780.000	20.000		0.00	0.00			
15 + 800.000	20.000		0.00	0.00			
15 + 820.000	20.000		0.00	0.00			
15 + 840.000	20.000		0.00	0.00			
15 + 860.000	20.000		0.00	0.00			
15 + 880.000	20.000		0.00	0.00			
15 + 900.000	20.000		0.00	0.00			
15 + 920.000	20.000		0.00	0.00			
15 + 940.000	20.000		0.00	0.00			
15 + 960.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
15 + 980.000	20.000		0.00	0.00			
16 + 0.000	20.000		0.00	0.00			
16 + 20.000	20.000		0.00	0.00			
16 + 40.000	20.000		0.00	0.00			
16 + 60.000	20.000		0.00	0.00			
16 + 80.000	20.000		0.00	0.00			
16 + 100.000	20.000		0.00	0.00			
16 + 120.000	20.000		0.00	0.00			
16 + 140.000	20.000		0.00	0.00			
16 + 160.000	20.000		0.00	0.00			
16 + 180.000	20.000		0.00	0.00			
16 + 200.000	20.000		0.00	0.00			
16 + 220.000	20.000		0.00	0.00			
16 + 240.000	20.000	8.60	4.30	86.00			
16 + 260.000	20.000	9.10	8.85	177.00			
16 + 280.000	20.000	10.40	9.75	195.00			
16 + 300.000	20.000	13.20	11.80	236.00			
16 + 320.000	20.000	13.70	13.45	269.00			
16 + 340.000	20.000	13.70	13.70	274.00			
16 + 360.000	20.000	15.20	14.45	289.00			
16 + 380.000	20.000	17.10	16.15	323.00			
16 + 400.000	20.000	18.20	17.65	353.00			
16 + 420.000	20.000	17.30	17.75	355.00			
16 + 440.000	20.000	16.80	17.05	341.00			
16 + 456.704	16.704	16.50	16.65	278.12			
16 + 460.000	3.296	16.50	16.50	54.38			
16 + 480.000	20.000	16.30	16.40	328.00			
16 + 500.000	20.000	16.40	16.35	327.00			
16 + 520.000	20.000	16.90	16.65	333.00			
16 + 540.000	20.000	17.50	17.20	344.00			
16 + 560.000	20.000	17.20	17.35	347.00			
16 + 580.000	20.000	15.90	16.55	331.00			
16 + 600.000	20.000	17.00	16.45	329.00			
16 + 620.000	20.000	16.30	16.65	333.00			
16 + 640.000	20.000	16.00	16.15	323.00			
16 + 660.000	20.000	15.60	15.80	316.00			
16 + 680.000	20.000	14.10	14.85	297.00			
16 + 700.000	20.000	15.50	14.80	296.00			
16 + 720.000	20.000	15.10	15.30	306.00			
16 + 723.371	3.371	14.60	14.85	50.06			
16 + 740.000	16.629	12.10	13.35	222.00			
16 + 760.000	20.000	12.40	12.25	245.00			
16 + 780.000	20.000	5.50	8.95	179.00			
16 + 800.000	20.000	3.00	4.25	85.00			
16 + 820.000	20.000	3.20	3.10	62.00			
16 + 840.000	20.000	3.20	3.20	64.00			
16 + 860.000	20.000	3.80	3.50	70.00			
16 + 880.000	20.000	7.20	5.50	110.00			
16 + 900.000	20.000	16.00	11.60	232.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
16 + 920.000	20.000	16.90	16.45	329.00			
16 + 940.000	20.000	17.30	17.10	342.00			
16 + 960.000	20.000	18.10	17.70	354.00			
16 + 980.000	20.000	17.60	17.85	357.00			
17 + 0.000	20.000		8.80	176.00			
17 + 1.586	1.586		0.00	0.00			
17 + 20.000	18.414		0.00	0.00			
17 + 40.000	20.000		0.00	0.00			
17 + 60.000	20.000		0.00	0.00			
17 + 80.000	20.000		0.00	0.00			
17 + 100.000	20.000		0.00	0.00			
17 + 120.000	20.000		0.00	0.00			
17 + 140.000	20.000		0.00	0.00			
17 + 160.000	20.000		0.00	0.00			
17 + 180.000	20.000		0.00	0.00			
17 + 200.000	20.000		0.00	0.00			
17 + 220.000	20.000		0.00	0.00			
17 + 240.000	20.000		0.00	0.00			
17 + 260.000	20.000		0.00	0.00			
17 + 280.000	20.000		0.00	0.00			
17 + 300.000	20.000		0.00	0.00			
17 + 320.000	20.000		0.00	0.00			
17 + 340.000	20.000		0.00	0.00			
17 + 341.462	1.462		0.00	0.00			
17 + 360.000	18.538		0.00	0.00			
17 + 380.000	20.000		0.00	0.00			
17 + 400.000	20.000		0.00	0.00			
17 + 420.000	20.000		0.00	0.00			
17 + 440.000	20.000		0.00	0.00			
17 + 460.000	20.000		0.00	0.00			
17 + 480.000	20.000		0.00	0.00			
17 + 500.000	20.000		0.00	0.00			
17 + 520.000	20.000		0.00	0.00			
17 + 540.000	20.000		0.00	0.00			
17 + 560.000	20.000		0.00	0.00			
17 + 580.000	20.000		0.00	0.00			
17 + 600.000	20.000		0.00	0.00			
17 + 620.000	20.000		0.00	0.00			
17 + 640.000	20.000		0.00	0.00			
17 + 660.000	20.000		0.00	0.00			
17 + 680.000	20.000		0.00	0.00			
17 + 700.000	20.000		0.00	0.00			
17 + 717.493	17.493		0.00	0.00			
17 + 720.000	2.507		0.00	0.00			
17 + 740.000	20.000		0.00	0.00			
17 + 760.000	20.000		0.00	0.00			
17 + 780.000	20.000		0.00	0.00			
17 + 800.000	20.000		0.00	0.00			
17 + 820.000	20.000		0.00	0.00			

## COMPUTATION OF UNSUITABLE MATERIAL VOLUMES

## MAIN ROAD

STATION	DISTANCE	SPOIL IN UNSUITABLE MATERIAL					
		BLACK COTTON SOIL			RUBBISH		
		SECTION	AVERAGE	VOLUME	SECTION	AVERAGE	VOLUME
		(m2)	(m2)	(m3)	(m2)	(m2)	(m3)
17 + 840.000	20.000		0.00	0.00			
17 + 860.000	20.000		0.00	0.00			
17 + 867.493	7.493		0.00	0.00			
17 + 880.000	12.507		0.00	0.00			
17 + 900.000	20.000		0.00	0.00			
17 + 920.000	20.000		0.00	0.00			
17 + 940.000	20.000		0.00	0.00			
17 + 960.000	20.000		0.00	0.00			
17 + 980.000	20.000		0.00	0.00			
Deduction - Volume (*)				-19,000.00			
(*)The Black Cotton Soil volume was calculated including existing boundary dike in the sections CH.0+800~2+40 & CH.4+200~4+960.							
TOTAL				134,317.88			9,741.39



### MOMBASA ROAD JUNCTION: A Slip Road

2.2. 25

**MOMBASA ROAD JUNCTION : B Slip Road**

2.2. 26



MOMBASA ROAD JUNCTION : C Slip Road

2.2. 27

**MOMBASA ROAD JUNCTION: D Slip Road**

2.2, 28

MOMBASA ROAD JUNCTION: E Slip Road

2.2. 29

MOMBASA ROAD JUNCTION : F Slip Road

2.2. 30

MOMBASA ROAD JUNCTION : G Slip Road

2.2. 31

MOMBASA ROAD JUNCTION : U-Turn Road

(\*) Volume = Paving Area (PA) x Height Average (HA)



## 2.3 Compaction of Original Ground below Fills



## SUMMARY OF COMPACTION OF EXISTING GROUND

DESCRIPTION	COMPACT ORIGINAL GROUND BELOW FILLS	
	AREA (m <sup>2</sup> )	VOLUME(t=15cm) (m <sup>3</sup> )
MAIN ROAD	358,030.6	53,704.6
MONBASA ROAD JUNCTION		
A SLIP ROAD	0.0	0.0
B SLIP ROAD	0.0	0.0
C SLIP ROAD	0.0	0.0
D SLIP ROAD	0.0	0.0
E SLIP ROAD	0.0	0.0
F SLIP ROAD	0.0	0.0
G SLIP ROAD	0.0	0.0
U TURN ROAD	0.0	0.0
UHURU MONUMENT JUNCTION		
A SLIP ROAD	1,553.0	233.0
B SLIP ROAD	2,431.7	364.8
C SLIP ROAD	4,731.0	709.7
D SLIP ROAD	3,463.3	519.5
APPROACH ROAD	0.0	0.0
NGONG ROAD JUNCTION		
A SLIP ROAD	883.7	132.6
B SLIP ROAD	5,295.7	794.4
APPROACH ROAD	0.0	0.0
DAGORETTI FOREST JUNCTION		
A SLIP ROAD	6,271.6	940.7
B SLIP ROAD	6,715.5	1,007.3
APPROACH ROAD	0.0	0.0
THOGOTO JUNCTION		
A SLIP ROAD	625.7	93.9
B SLIP ROAD	6,307.1	946.1
APPROACH ROAD	0.0	0.0
KIKUYU TOWN JUNCTION		
A SLIP ROAD	10,093.6	1,514.0
B SLIP ROAD	117.0	17.6
C SLIP ROAD	408.6	61.3
D SLIP ROAD	4,462.0	669.3
E SLIP ROAD	193.0	29.0
KIKUYU JUNCTION		
A SLIP ROAD	3,161.6	474.2
B SLIP ROAD	240.1	36.0
C SLIP ROAD	2,469.8	370.5
TOTAL	417,454.6	62,618.2



## **2.4 Compaction of Subgrade and Rock Formation Levelling**

SCHEDULE OF SUBGRADE VOLUMES

DESCRIPTION	COMPACTION OF SUBGRADE		ROCK FORMATION LEVELLING
	IN FILL AREA	IN CUT AREA	
	(m3)	(m3)	(m2)
MAIN ROAD	99,711.8	75,225.1	72,082.7
ACCELERATION & DECELERATION LANES			
1. NGONG J.C.	541.1	589.2	
2. DAGORETTI J.C.	1,270.1	0.0	
3. THOGOTO J.C.	555.1	582.3	
4. KIKUYU TOWN J.C.	383.2	683.8	
5. BUSSTOP	1,084.8	376.4	
MONBASA ROAD JUNCTION			
A SLIP ROAD	1,078.3	114.7	
B SLIP ROAD	527.4	305.6	
C SLIP ROAD	523.7	512.2	
D SLIP ROAD	679.3	166.8	
E SLIP ROAD	661.4	208.8	
F SLIP ROAD	628.1	501.0	
G SLIP ROAD	471.1	479.1	
U TURN ROAD	498.6	251.7	
UHURU MONUMENT JUNCTION			
A SLIP ROAD	303.4	427.5	
B SLIP ROAD	401.6	184.6	
C SLIP ROAD	587.4	136.3	
D SLIP ROAD	676.9	68.6	
APPROACH ROAD	1,721.3	604.8	
NGONG ROAD JUNCTION			
A SLIP ROAD	0.0	1,469.7	
B SLIP ROAD	528.4	266.7	
APPROACH ROAD	945.5	2,691.0	
DAGORETTI FOREST JUNCTION			
A SLIP ROAD	1,493.7	17.2	
B SLIP ROAD	1,076.1	280.3	
APPROACH ROAD	113.9	1,661.9	
THOGOTO JUNCTION			
A SLIP ROAD	139.3	1,207.0	
B SLIP ROAD	905.7	577.7	
APPROACH ROAD	184.8	1,518.9	
KIKUYU TOWN JUNCTION			
A SLIP ROAD	1,710.3	3,749.8	
B SLIP ROAD	0.0	321.4	
C SLIP ROAD	0.0	753.5	
D SLIP ROAD	946.4	2,053.8	
E SLIP ROAD	74.1	114.5	
KIKUYU JUNCTION			
A SLIP ROAD	619.2	949.3	
B SLIP ROAD	8.2	305.6	
C SLIP ROAD	646.5	669.3	
SERVICE ROAD			
CH.26+460 C-BOX Approach		153.9	
TOTAL	121,696.7	100,180.0	72,082.7

## COMPUTATION OF SUBGRADE VOLUMES

MAIN ROAD

STATION	DISTANCE	SUBGRADE AREAS					SUBGRADE VOLUME				SUBGRADE DISTRIBUTION		ROCK FORMATION LEVELLING (m2)
		CARRIAGE ROAD		SHOULDER SECTION		CENTRAL RESERVE SECTION (m2)	SECTION (m2)	AVERAGE (m2)	VOLUME (m3)	FILL AREAS (m3)	CUT AREAS (m3)		
		LEFT SIDE WIDTH (m)	RIGHT SIDE WIDTH (m)	LEFT SIDE (m2)	RIGHT SIDE (m2)								
0 + 000.000		3.50		0.854	0.854		2.76		0.00	0.00			
0 + 020.000	20.000	3.50	3.50	0.854	0.854		3.81	3.28	65.66	65.66			
0 + 040.000	20.000	3.50	5.25	0.854	0.854		4.33	4.07	81.41	81.41			
0 + 060.000	20.000	3.50	7.00	0.854	0.854		4.86	4.60	91.91	91.91			
0 + 080.000	20.000	3.50	7.00	0.854	0.854		4.86	4.86	97.16	97.16			
0 + 100.000	20.000	3.50	7.00	0.854	0.854		4.86	4.86	97.16	97.16			
0 + 120.000	20.000	4.79	7.00	0.854	0.854		5.25	5.05	101.03	101.03			
0 + 140.000	20.000	6.19	7.00	0.854	0.854		5.67	5.46	109.10	109.10			
0 + 160.000	20.000	7.59	7.00	0.854	0.854		6.09	5.88	117.50	117.50			
0 + 180.000	20.000	8.99	7.00	0.854	0.854		6.51	6.30	125.90	125.90			
0 + 200.000	20.000	10.39	7.00	0.854	0.854		6.93	6.72	134.30	134.30			
0 + 201.588	1.588	10.50	7.00	0.854	0.854		6.96	6.94	11.02	11.02			
0 + 201.588	0.000	5.00	7.00	0.225	0.854		4.68						
0 + 207.733	6.145	5.00	7.00	0.225	0.854		4.68	4.68	28.75	28.75			
0 + 211.588	3.855	5.00	7.37	0.225	0.855		4.79	4.74	18.25	18.25			
0 + 211.588	0.000	3.50	7.37	0.854	0.854		4.97		0.00	0.00			
0 + 220.000	8.412	3.50	8.16	0.854	0.854		5.21	5.09	42.80	42.80			
0 + 224.687	4.687	3.50	8.61	0.854	0.854		5.34	5.27	24.72	24.72			
0 + 224.687	0.000	3.50	8.61	0.854	0.225		4.71						
0 + 230.000	5.313	3.50	9.11	0.854	0.225		4.86	4.79	25.43	25.43			
0 + 240.000	10.000	3.75	10.31	0.854	0.747		6.08	5.47	54.72	54.72			
0 + 244.687	4.687	3.87	10.87	0.747	0.747		6.30	6.19	29.02	29.02			
0 + 244.687	0.000	3.87	5.37	0.747	0.747		4.65						
0 + 254.687	10.000	4.12	5.62	0.747	0.747		5.06	4.86	48.57	48.57			
0 + 254.687	0.000	4.12	4.12	0.747	0.747		4.61						
0 + 260.000	5.313	4.25	4.25	0.747	0.747		4.83	4.72	25.09	25.09			
0 + 270.000	10.000	4.50	4.50	0.747	0.747		5.24	5.04	50.38	50.38			
0 + 270.000	0.000	3.50	3.50	0.747	0.747		4.64						
0 + 280.000	10.000	3.50	3.50	0.747	0.747		4.64	4.64	46.44	46.44			
0 + 297.565	17.565	3.50	3.50	0.747	0.747		4.64	4.64	81.57	81.57			
0 + 297.565	0.000	3.50	5.00	0.747	0.225		4.57						
0 + 300.000	2.435	3.50	5.00	0.747	0.225		4.57	4.57	11.13	11.13			

COMPUTATION OF SUBGRADE VOLUMES

MAIN ROAD

STATION	DISTANCE	SUBGRADE AREAS						SUBGRADE VOLUME				SUBGRADE DISTRIBUTION		ROCK FORMATION LEVELLING (m2)
		CARRIAGE ROAD		SHOULDER SECTION		CENTRAL RESERVE SECTION (m2)	SECTION (m2)	AVERAGE (m2)	VOLUME (m3)	FILL AREAS (m3)	CUT AREAS (m3)			
		LEFT SIDE WIDTH (m)	RIGHT SIDE WIDTH (m)	LEFT SIDE (m2)	RIGHT SIDE (m2)									
												RIGTH SIDE (m2)		
0 + 307.565	7.565	3.50	5.00	0.747	0.225	1.050	4.57	4.57	34.59	34.59				
0 + 307.565	0.000	3.50	10.50	0.747	0.747	1.050	6.74	6.74						
0 + 318.500	10.935	3.50	9.61	0.747	0.747	1.050	6.48	6.61	72.29	72.29				
0 + 320.000	1.500	3.50	9.49	0.747	0.747	1.050	6.44	6.46	9.69	9.69				
0 + 340.000	20.000	3.50	7.86	0.747	0.747	1.050	5.95	6.20	123.93	123.93				
0 + 350.615	10.615	3.50	7.00	0.747	0.747	1.050	5.69	5.82	61.81	61.81				
0 + 360.000	9.385	3.50	7.00	0.747	0.747	1.050	5.69	5.69	53.44	53.44				
0 + 368.800	8.800	3.50	7.00	0.747	0.747	1.050	5.69	5.69	50.11	50.11				
0 + 380.000	11.200			0.000	0.000	1.050	1.05	3.37	37.77	37.77				
0 + 400.000	20.000			0.000	0.000	1.050	1.05	1.05	21.00	21.00				
0 + 420.000	20.000			0.000	0.000	1.050	1.05	1.05	21.00	21.00				
0 + 426.400	6.400	3.50	7.00	0.747	0.747	1.050	5.69	3.37	21.58	21.58				
0 + 440.000	13.600	3.50	7.00	0.747	0.747	1.050	5.69	5.69	77.44	77.44				
0 + 447.072	7.072	4.12	7.00	0.747	0.747	1.050	5.88	5.79	40.93	40.93				
0 + 457.040	9.968	5.20	7.00	0.747	0.747	1.050	6.20	6.04	60.23	60.23				
0 + 460.000	2.960	5.50	7.35	0.747	0.747	1.050	6.40	6.30	18.65	18.65				
0 + 480.000	20.000	7.00	9.72	0.747	0.747	1.050	7.56	6.98	139.59	139.59				
0 + 500.000	20.000	7.00	12.09	0.747	0.747	1.050	8.27	7.92	158.31	158.31				
0 + 505.849	5.849	7.00	12.79	0.747	0.747	1.050	8.48	8.38	48.99	48.99				
0 + 516.072	10.223	8.13	14.00	0.747	0.747	1.050	9.18	8.83	90.29	90.29				
0 + 516.072	0.000	8.13	8.50	0.747	0.225	1.050	7.01							
0 + 520.000	3.928	8.56	8.50	0.747	0.225	1.050	7.14	7.08	27.79	27.79				
0 + 526.072	6.072	9.23	8.50	0.747	0.225	1.050	7.34	7.24	43.96	43.96				
0 + 526.072	0.000	9.23	7.00	0.747	0.747	1.050	7.41							
0 + 537.587	11.515	10.50	7.00	0.747	0.747	1.050	7.79	7.60	87.55	87.55				
0 + 537.587	0.000	5.00	7.00	0.225	0.747	1.050	5.62							
0 + 540.000	2.413	5.00	7.00	0.225	0.747	1.050	5.62	5.62	13.57	13.57				
0 + 547.587	7.587	5.00	7.00	0.225	0.747	1.050	5.62	5.62	42.65	42.65				
0 + 547.587	0.000	3.50	7.00	0.747	0.747	1.050	5.69							
0 + 560.000	12.413	3.50	7.00	0.747	0.747	1.050	5.69	5.69	70.68	70.68				
0 + 580.000	20.000	3.50	7.00	0.747	0.747	1.050	5.69	5.69	113.88	113.88				
0 + 600.000	20.000	3.50	7.00	0.747	0.747	1.050	5.69	5.69	113.88	113.88				

COMPUTATION OF SUBGRADE VOLUMES

MAIN ROAD

STATION	DISTANCE	SUBGRADE AREAS						CENTRAL RESERVE SECTION				SUBGRADE VOLUME				SUBGRADE DISTRIBUTION		ROCK FORMATION LEVELLING
		CARRIAGE ROAD		SHOULDER		SECTION		SECTION	RESERVE SECTION	SECTION	AVERAGE	VOLUME	FILL AREAS	CUT AREAS				
		LEFT SIDE WIDTH (m)	RIGHT SIDE WIDTH (m)	LEFT SIDE (m <sup>2</sup> )	RIGHT SIDE (m <sup>2</sup> )	LEFT SIDE (m <sup>2</sup> )	RIGHT SIDE (m <sup>2</sup> )											
0 + 601.720	1.720	3.50	7.00	0.747	0.747	0.747	0.747	1.050	1.050	5.69	5.69	9.79	9.79			(m <sup>2</sup> )		
0 + 601.720	0.000	3.50	8.50	0.747	0.747	0.747	0.225	1.050	1.050	5.62	5.62	56.22	56.22					
0 + 611.720	10.000	3.50	8.50	0.747	0.747	0.747	0.225	1.050	1.050	5.62	5.62	56.22	56.22					
0 + 611.720	0.000	3.50	14.00	0.747	0.747	0.747	0.747	1.050	1.050	7.79	7.79							
0 + 620.000	8.280	3.50	12.50	0.747	0.747	0.747	0.747	1.050	1.050	7.34	7.34	62.67	62.67					
0 + 631.092	11.092	3.50	10.50	0.747	0.747	0.747	0.747	1.050	1.050	6.74	6.74	78.13	78.13					
0 + 640.000	8.908	3.50	10.50	0.747	0.747	0.747	0.747	1.050	1.050	6.74	6.74	60.08	60.08					
0 + 660.000	20.000	3.50	10.50	0.747	0.747	0.747	0.747	1.050	1.050	6.74	6.74	134.88	134.88					
0 + 680.000	20.000	3.50	8.75	0.747	0.747	0.747	0.854	1.050	1.050	6.33	6.33	130.70	130.70					
0 + 682.078	2.078	3.50	8.57	0.747	0.747	0.747	0.854	1.050	1.050	6.27	6.30	13.09	13.09					
0 + 682.078	0.000	5.00	8.57	0.225	0.854	0.854	0.854	1.050	1.050	6.20	6.20							
0 + 692.078	10.000	5.00	7.69	0.225	0.854	0.854	0.854	1.050	1.050	5.94	6.07	60.68	60.68					
0 + 692.078	0.000	10.50	7.69	0.854	0.854	0.854	0.854	1.050	1.050	8.22	8.22							
0 + 700.000	7.922	10.09	7.00	0.854	0.854	0.854	0.854	1.050	1.050	7.89	8.05	63.77	63.77					
0 + 720.000	20.000	9.06	7.00	0.854	0.854	0.854	0.854	1.050	1.050	7.58	7.73	154.61	154.61					
0 + 740.000	20.000	8.03	7.00	0.854	0.854	0.854	0.854	1.050	1.050	7.27	7.42	148.43	148.43					
0 + 760.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.050	1.050	6.96	7.11	142.25	142.25					
0 + 780.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.050	1.050	6.96	6.96	139.16	139.16					
0 + 800.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.050	1.050	6.96	6.96	139.16	139.16					
0 + 820.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.14	142.74	127.47					
0 + 840.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	140.62					
0 + 860.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	146.32					
0 + 880.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	126.65					
0 + 900.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	146.32					
0 + 920.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	146.32					
0 + 940.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	110.30					
0 + 944.627	4.627	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	33.85	29.74					
0 + 960.000	15.373	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	112.47	100.17					
0 + 980.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	118.98					
1 + 000.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	73.79					
1 + 020.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	146.32					
1 + 040.000	20.000	7.00	7.00	0.854	0.854	0.854	0.854	1.408	1.408	7.32	7.32	146.32	146.32					