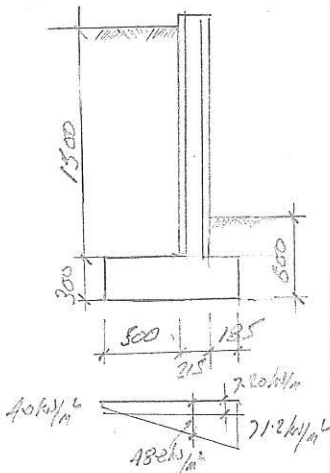


1.0 RETAINING WALL DESIGN

TO RS 5628: PART 2

THE WALL IS REQUIRED TO RETAIN COMPACTED CLAY TO A HEIGHT 3000mm AND ALSO TO
RESIST A HORIZONTAL LOAD FROM VEHICLES = 50kN/m AT 1.60m. I WILL NOT DESIGN
FOR BALANCE LOAD BECAUSE THE TWO WOULD NOT ACT TOGETHER.



$$\text{MOMENT ON WALL} = 0.27 \left(20.0 \times 1.40 \times 1.50^3 + 10.0 \times 1.60 \times 1.50^2 \right) = 9.12 \text{ kNm/m}$$

$$M_d = 0.40 \times 4.36 \times 10^3 \times 1.1 = 9.07 \text{ kNm/m}$$

$$M_t = 500 \times 393 \times 70 / 145 \times 10^6 = 10.62 \text{ kNm/m}$$

$$0.1M \text{ ON FOOTING} = 0.27 \left(20.0 \times 1.50^3 + 10.0 \times 1.60^2 \times 0.50 \right) = 7.42 \text{ kNm}$$

$$\text{RESISTANCE FROM SURCHARGE} = 100 \times 0.50 = 50.0 \times 0.65 = 32.5$$

$$\text{SOIL} = 20.0 \times 0.50 \times 0.50 = 5.00 \times 0.65 = 3.25$$

$$\text{WALL} = 4.70 \times 1.50 = 7.05 \times 0.30 = 2.11$$

$$\text{BASE} = 2.00 \times 0.90 \times 0.50 = 0.90 \times 0.45 = 0.40$$

$$33.86 \text{ kN/m} \quad 18.13 \text{ kN/m}$$

$$\text{ECCENTRICITY} = 0.45 - (18.13 - 7.42) / 33.86 = 0.134 \text{ METRES}$$

$$\text{BEARING PRESSURE} = 33.86 / 0.90 + 33.86 \times 0.134 \times 6 / 0.90^2 = 37.6 \pm 33.6 = 71.2 \text{ kN/m}^2$$

$$\text{MOMENT DUE TO SURCHARGE} = (4.10 \times 0.30 \times 0.50 + 2.00 \times 0.30 \times 0.50) \times 1.50 \times 0.65 = 3.82 \text{ kNm}$$

$$M_t = 3.82 / 80 \times 100 \times 45 \times 25 = 27 \text{ kNm/m}$$

$$\text{SLURRING} = 0.27 \left(20.0 \times 1.50^3 + 10.0 \times 1.60^2 \times 0.50 \right) = 7.11 \text{ kNm/m}$$

$$\text{PROPOSED RESISTANCE} = 33.86 \times 0.50 = 16.93 \text{ kN/m}$$

∴ THE WALL AS DESIGNED IS CONSIDERED TO BE SATISFACTORY

2.0 GROUND LEVELS

THE EXISTING GROUND SLOPES AT ABOUT 1 IN 1.5. I THEREFORE CONSIDER THAT WHERE
IT IS NECESSARY TO RE-GRADE THESE AREAS THEY WILL BE SATISFACTORY IF THE
FINISHED SLOPE IS 1 IN 1.5.

WHILE THE ROAD INTO THE LIA PARK IS TO BE CONSTRUCTED I CONSIDER THAT THE
SLOPE ON THE FILLED GROUND SHOULD NOT EXCEED 1 IN 3 (15%). IF THE GROUND HAS
TO EXCEED THIS SLOPE A RETAINING WALL IS REQUIRED.