

Project LONGRIDGE CRICKET CLUB			Job Ref. _____	
Section WALL POST DESIGN.			Sheet no. / rev. 1	
Calc. by KP	Date PR3 25	Chk'd by IS	Date	App'd by Date

BRIEF

A WIND LOADING ANALYSIS IS REQ'D TO ASCERTAIN THE
ADEQUACY OF A VERTICAL WIND POST FENCE TO A PROTECTIVE
HOARDING STRUCTURE AT LONGRIDGE CRICKET CLUB, PR3 2R.
THE STRUCTURAL STEEL POST COMPRISES OF A 80x80x5.0 SHS
GRADE S355, WHICH IS SUPPORTED AT THE BASE WITHIN
A 100x100x5.0 SHS.

WIND LOAD ANALYSIS IN ACCORDANCE WITH BS6399-2:1997
STEELWORK DESIGN IN ACCORDANCE WITH BS 5950-1:2000.

SITE INFORMATION.

POSTCODE; PR3 2R

GRID REFERENCE; SD601380

EASTINGS; 360132

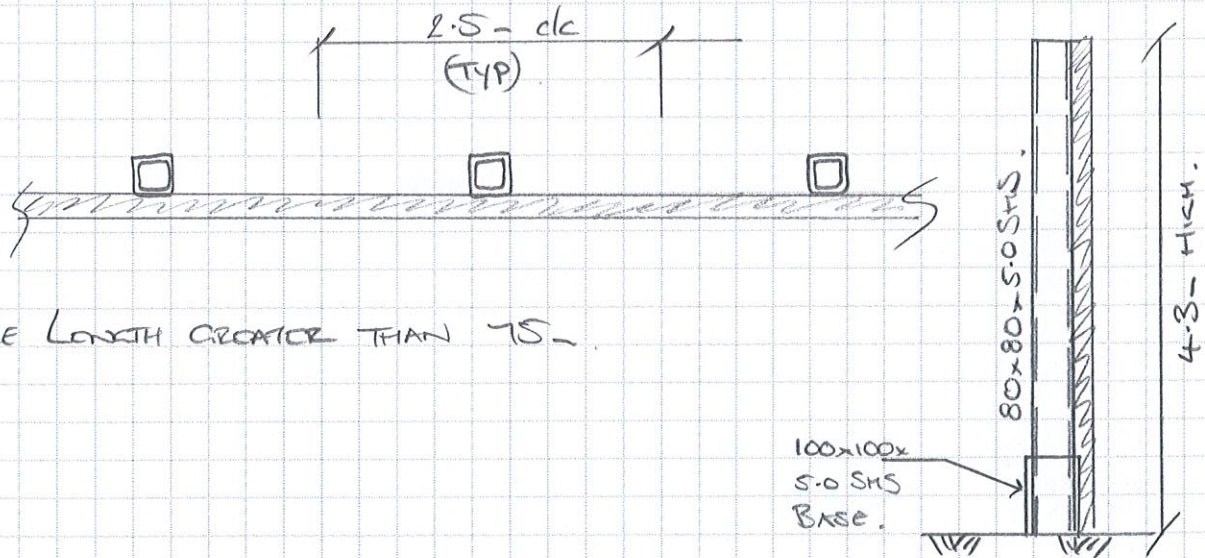
NORTHINGS; 438095

SITE ALTITUDE; +106. AOD

BASIC WIND SPEED; 23.5 m/s.

DISTANCE TO SEA; 22km

EFFECTIVE HEIGHT; 4.3m



FENCE LENGTH GREATER THAN 75-

$$V_b = 23.5 \text{ -/s}$$

$$S_A = 1 + (0.001 \times 106) = 1.106$$

$$S_D = 1.0$$

$$S_S = 1.0$$

$$S_p = 1.0$$

SHE IN COUNTRY

DIST TO SEA = 22km

BUILDING HEIGHT = 4.3-

$$\therefore S_D = 1.50 \text{ (LINEAR INTERPOLATION OF TABLE 4.)}$$

$$V_s = 23.5 \times 1.106 \times 1.0 = 25.99 \text{ -/s}$$

$$V_e = 1.50 \times 25.99 \text{ -/s} = 38.99 \text{ -/s}$$

$$q_s = 0.613 \times 38.99^2 \text{ -/s} \times 10^{-3} = 0.932 \text{ kN/m}^2$$

$L/h > 15$, $\therefore$ NO REDUCTION FACTOR APPLIED, $\gamma_K = 1.0$.

$$p_e = 1.2 \times 0.932 \text{ kN/m}^2 = \underline{1.118 \text{ kN/m}^2} \text{ APPLIED}$$

($\xi = 0.8$ SOLIDITY)

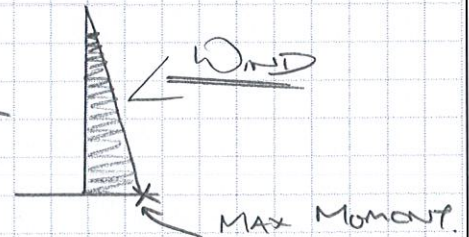
Apply Wind Load to posts at 2.5- c/c. SEE CALC OUTPUT.

CHECK POST AS PART OF A SYSTEM OF POSTS WORKING TOGETHER.

ALLOW FOR STRESS SKIN DIAGRAM ACTION OF HOARDING FACE SPANNING BETWEEN ALL POSTS AT EVERY CONNECTION POINT.

AS THE BASE OF THE POST IS A $100 \times 100 \times 5.0$ SHS & THE NATURE OF THE APPLIED LOADING, MAXIMUM MOMENT WILL OCCUR AT THE BASE, & NOT THE UPPER PORTION OF THE WIND POST.

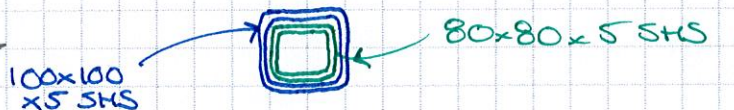
$$M = \frac{wL^2}{2} = \frac{(1.118 \times 25) \times 4.3^2}{2} = 25.8 \text{ kNm}$$



$$M_{cap} = 1.2 \times 355 \times 55.9 \times 10^{-3} = 23.8 \text{ kNm}$$

($100 \times 100 \times 5$).

HOWEVER, WITH THE POST BEING SLOTTED WITHIN THE DEPTH OF THE $100 \times 100 \times 5.0$ POST BASE MEMBER, ADDITIONAL COMPOUNDED CAPACITY FROM THE 80 SHS & THE 100 SHS CAN BE COMBINED.



CONSERVATIVELY SAY 50% CONTRIBUTION, FROM $80 \times 80 \times 5$ SHS.

$$\text{COMBINED CAPACITY} = 23.8 \text{ kNm} + (0.5 \times 1.2 \times 355 \times 34.2 \times 10^{-3})$$

$$= 31.1 \text{ kNm} > 25.8 \text{ kNm}$$

∴ OK.