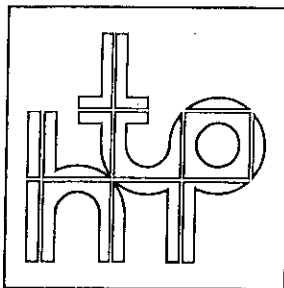


APPENDIX C



CONSULTING CIVIL & STRUCTURAL ENGINEERS The Barn, Keens Lodge, Worth Lane, Little Horsted, East Sussex, TN22 5TT Tel: (01825) 750440		Project No. 18339
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1. LOADING (BS6399)

Horizontal load = 1.5 kN/m

Vertical load = 0.6 kN/m

2. TOP RAIL

Span between posts = 2.5 m max.

Horizontal $M = 1.5 \times 2.5^2 / 8 = 1.17 \text{ kNm}$

Top 260 x 75 PFC, $S_{xx} = 28 \text{ kg/m}$

total vertical load = $0.6 + 0.3 = 0.9 \text{ kN}$

Vertical $M = 0.9 \times 2.5^2 / 8 = 0.70 \text{ kNm}$

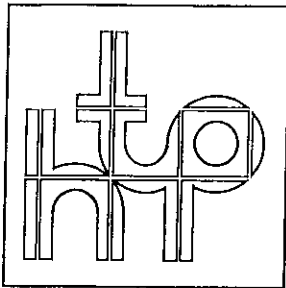
$$\frac{R}{n} = \frac{2500 \times 1.2}{23} = 130 \quad \frac{D}{C} = 22$$

$p_{bc} = 108 \text{ N/mm}$

$$f_{bc} = \frac{1170}{278} + \frac{700}{344} = 25 \text{ N/mm} < p_{bc} \therefore \text{O.K.}$$

$$\text{Vert deflection} = \frac{5 \times 0.9 \times 2.5^4 \times 10^9}{384 \times 205 \times 185 \times 10^4} = \frac{1.2 \text{ mm}}{1.2 \text{ mm}} \therefore \text{O.K.}$$

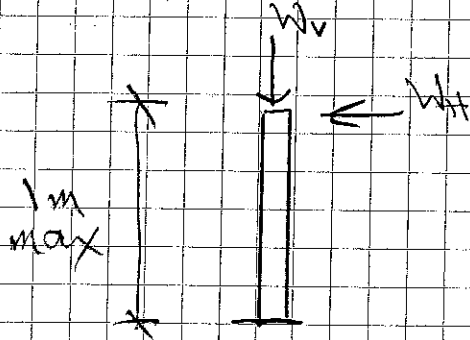
VSE TOP RAIL 260 x 75 x 28 PFC



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3. POSTS

At max 2.5 m c/c.



$$W_v = (0.9 \times 2.5) + SW = 3.0 \text{ kN}$$

$$W_H = 1.5 \times 2.5 = 3.75 \text{ kN}$$

$$M_H = 3.75 \times 1 = 3.75 \text{ kNm}$$

using 203x102x23 UB

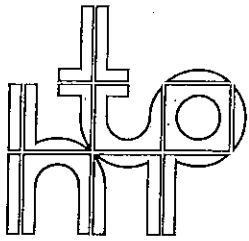
$$\frac{P}{A_g} = \frac{1000 \times 2}{23.7} = 84, \quad \frac{D}{T} = 22 \Rightarrow P_{oc} = 145 \text{ N/mm}^2$$

$$P_{oc} = \frac{3750}{206} = 18.2 \text{ N/mm}^2$$

$$P_c = \frac{3000}{2200} = 1.0 \text{ N/mm}^2$$

$$\frac{18.2}{145} + \frac{1}{104} = 0.14 \therefore 0.1$$

USE 203x102x23 UB POSTS @ MAX 2.5m c/c.
--



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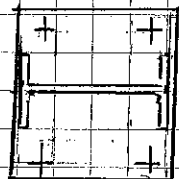
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04

4. POST FIXING

M = 3.75 kNm, Shear = 3.75 kN.

Try 220 x 220 base plate plus 4 anchors @ 165 x 165 etc.



$$\text{Bolt modulus} = 2 \left(\frac{27.5^2}{192.5} + \frac{192.5^3}{192.5} \right) = 393 \text{ mm}$$

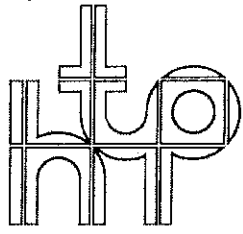
$$T/\text{bolt} = \frac{3.75}{0.393} = 9.55 \text{ kN}$$

$$V/\text{bolt} = \frac{3.75}{4} = 0.94 \text{ kN}$$

Safe loads on M12 Rawl Kenfix anchor
T = 10.1 kN
V = 7.6 kN in 30 N/mm² concrete
@ 165 x 165 etc.

$$\frac{9.55}{10.1} + \frac{0.94}{7.6} = 1.07 \therefore \text{OK}$$

USE 220 x 220 x 12 TH.
BASE PLATE AND
4 M12 RAWL KENFIX
ANCHORS @ 165 x 165 etc,
MIN. EMBEDMENT OF
110 mm INTO CONCRETE.



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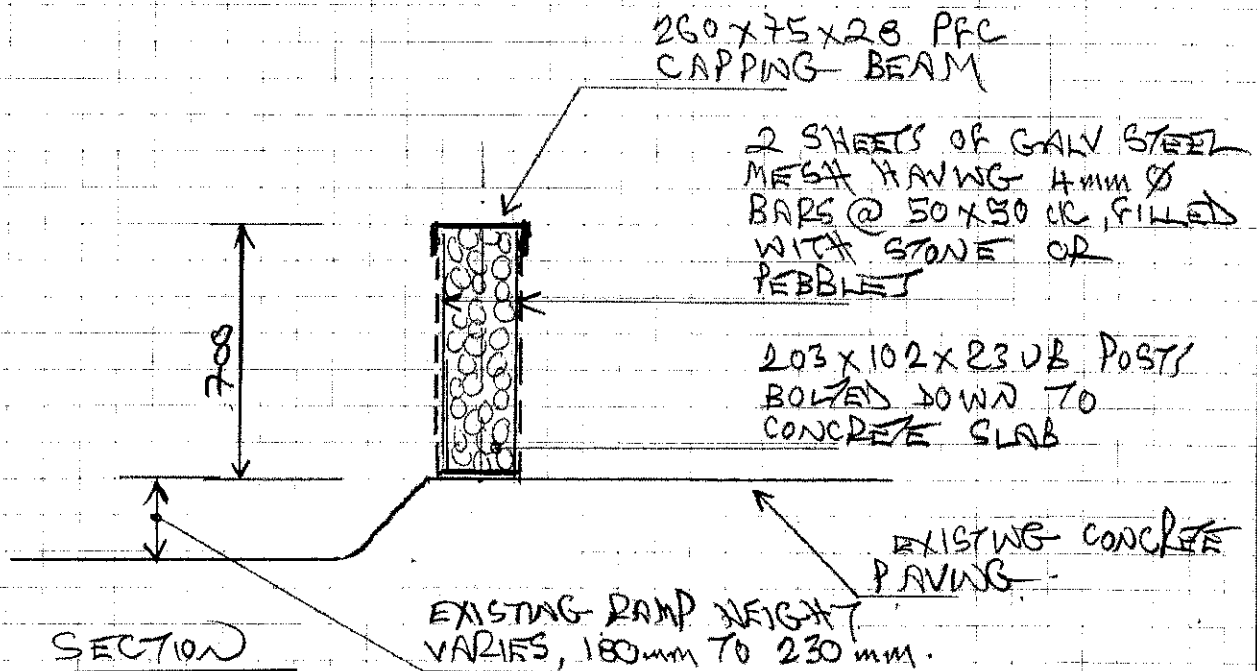
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Date. 6/19

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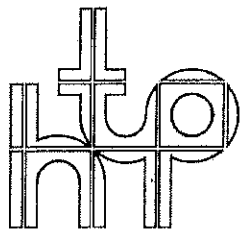
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AWB, 3/2/20



NOTES

1. PLEASE REFER TO CHALKWORTH HALL DRAWING NOS 2018-17-02, 04 + 05A FOR GENERAL LOCATION AND SETTING OUT FOR WALL.
2. ALL STEELWORK, MESH, PLATES + BOLTS ETC TO BE HOT DIP GALVANISED TO BS729 TO A MINIMUM DRY FILM THICKNESS OF 85 MICRONS.



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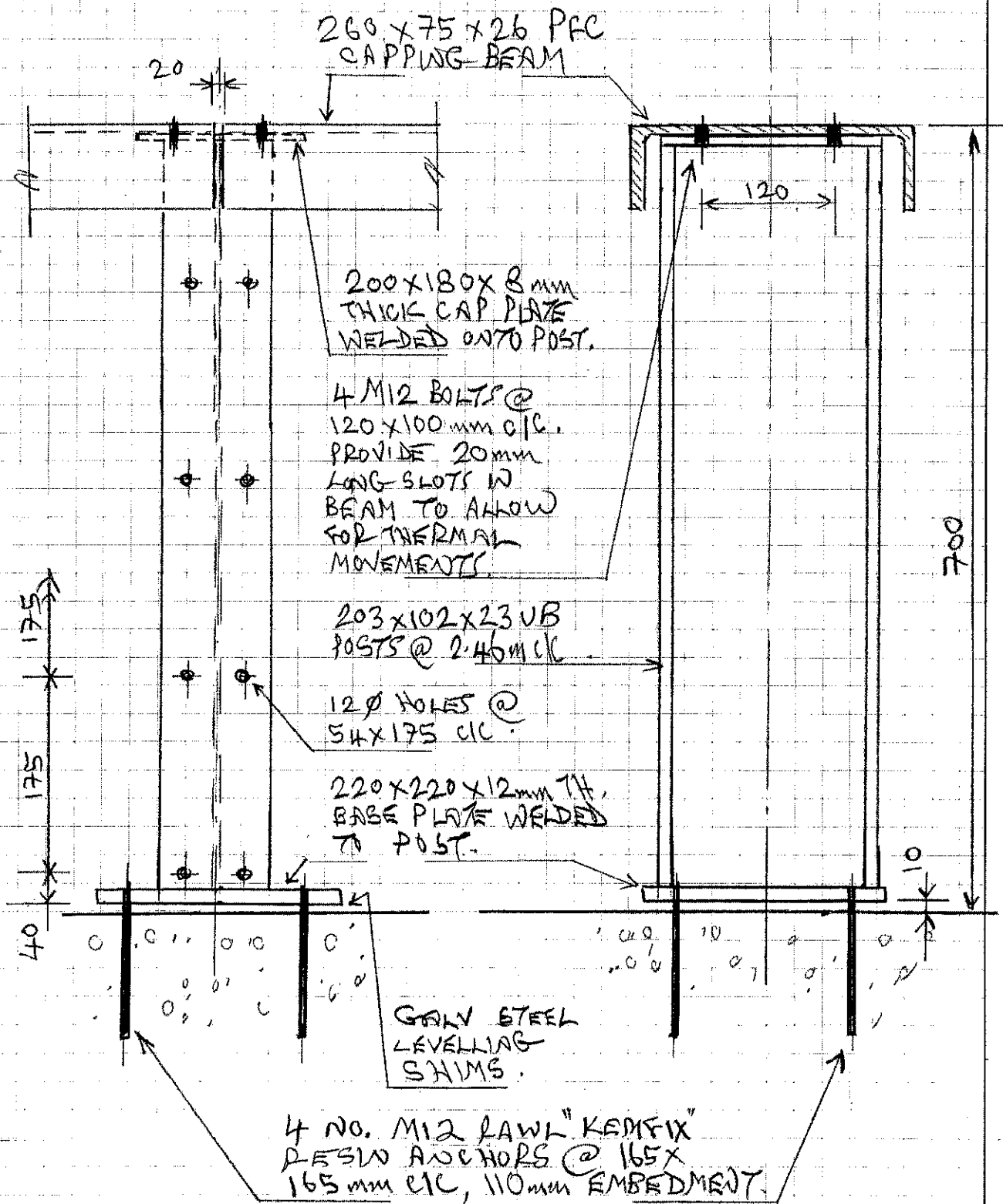
Date 6/19

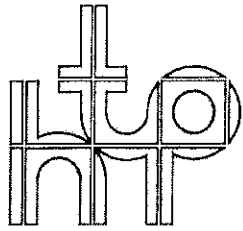
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Page No. SK03^B

Rev. B. 3/2/20

POST + CAPPING BEAM DETAILS (Scale 1:5)





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Page No. SK04^B

DNB. 3/2/20

MESH FIXING DETAILS (Scale 1:5)

2440X620 mm SHEETS OF GALV MESH
(4 mm $\varnothing$ BARS @ 50X50 C/C)

580X100X
6 mm TH
COVER
STRIPS

10 mm $\varnothing$
BOLTS @
54X175 mm
CENTRES

TIE WIRES
BETWEEN MESH
SHEETS TO
PREVENT
BULGING

30