CALCULATION SHEET

PROJECT SLCM		JOB ID	
SUBJECT Fuel oil tank		DESIGNED	PAGE
		CHECKED 6 of 107	SHEET

Fuel oil tank [3400 x 7300 x 3500 dp]

Weight of tank

Roof Slab = 7.3 x 3.4 x 0.2 x 2.4 = 11.9 t

RC Wall = 2[7.8+3.4] x 0.25 x 3.5 x 2.4 = 47.1 t

RC Base Slab = 8.3 x 4.4 x 0.25 x 2.4 = 21.92 t

Concrete Base = 4 x 0.8 x 3.0 x 1.0 x 2.4 = 23.1 t

Steel Tank [20,000 litre] = 20 t

LL = 7.8 x 3.9 x 1.0 = 30.5 t

total load = 154.52 t

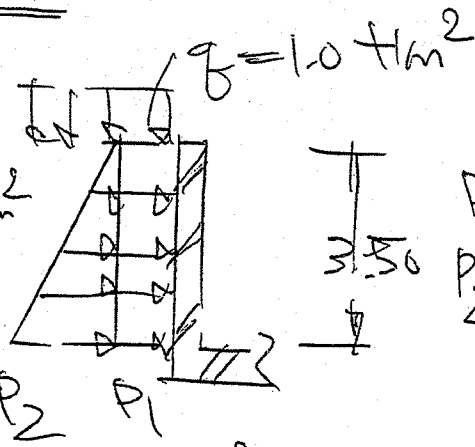
$$p = \frac{154.52}{8.3 \times 4.4} = 4.23 \text{ t/m}^2$$

< 8.00 t/m² ok!

CALCULATION SHEET

PROJECT	JOB ID	
SUBJECT	DESIGNED	PAGE
Fuel Oil Tank	CHECKED Oct'07	SHEET 2

RC Wall



$P_1 = 0.33 \times 1.0 = 0.33$ t/m²

$P_2 = 0.33 \times (1.8 \times 3.5) = 2.08$ t/m²

$$M = 0.5 \times 0.5 \times 3.5 + 0.5 \times 3.5 \times 3.5 \times 3.5/3$$

$$= 6.27 \text{ T.m/m}$$

$M_U = 1.85 \times 6.27 = 11.59$ T.m/m

$d = 22$

$\rho = 0.0071$

$A_s = 15.62$ cm²/m : D16@125 : Vert (E.F.)

$A_{s,tm} = 4.50$ cm²/m : D12@200 : Horz (E.F.)

CALCULATION SHEET

PROJECT SICM	JOB ID	
SUBJECT Fuel Oil Tank	DESIGNED	PAGE 3
	CHECKED Oct'07	SHEET

Base Slab

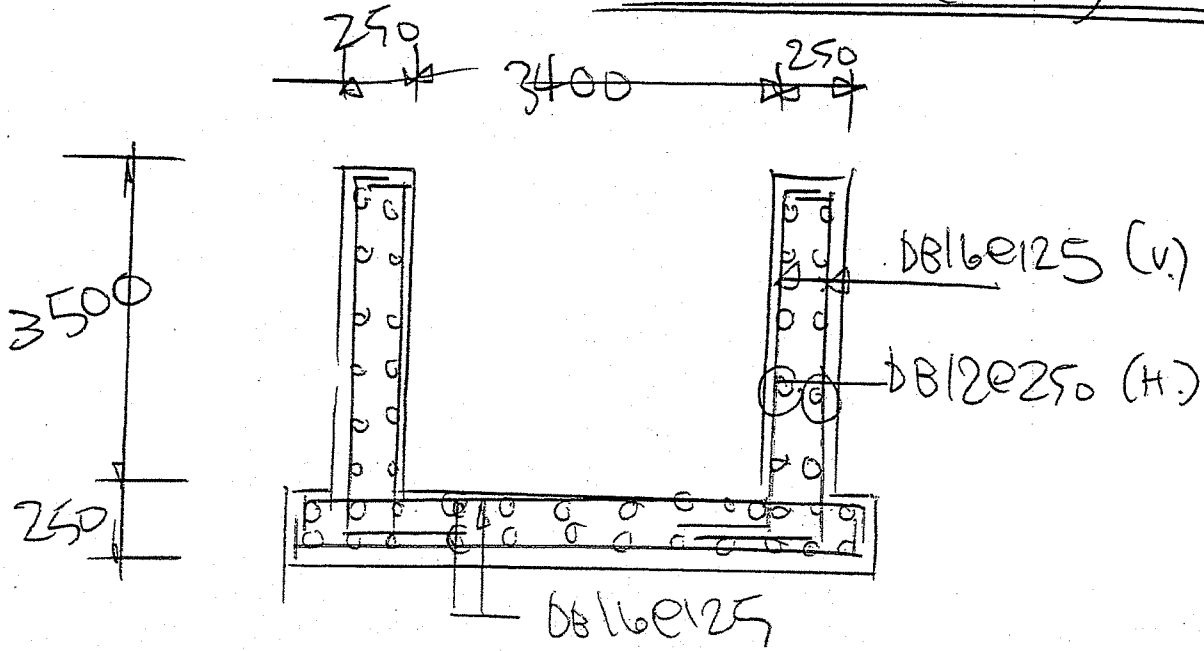
DL = 600 kg/m²
Uplift = 3500 "
~2900 ↑

M = 1/12 × 2900 × 3.4²
= 2794 kg-m/m
M_U = 5169 kg-m/m
A_{s_U} = 6.89 cm²/m

DL = 600 kg/m²
P = 4230 kg/m² ↓

M = 1/12 × 4230 × 3.4²
= 4080 kg-m/m
M_U = 7344 "
A_{s_U} = 11.12 cm²/m

DB16@125 (T&B) EW



Fuel Oil Tank : SHORT SPAN

CALCULATION SHEET

PROJECT	SLCM.	JOB ID	
SUBJECT	Fuel oil Tank	DESIGNED	PAGE
		CHECKED	SHEET 4

Roof Tank of fuel Tank

(S1) Use $t = 0.25\ m$

$DL = 600\ kg/m^2$

$LL = 200\ kg/m^2$

$\frac{2600}{8}$

$M = \frac{1}{8} \times 2600 \times 1.2^2 = 468\ kg.m/m$

~~A_{st}~~ $= 1.37\ cm^2/m$ =

~~ϕ_{min}~~ $= 4.50\ cm/m$ $= \underline{\phi 12 @ 200}$.

$M_{pt} = \frac{7200 \times 1.2}{4} = 2160\ kg.m/m$

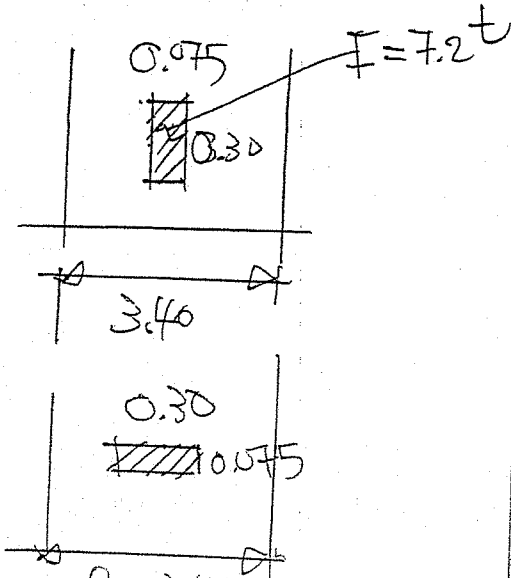
$A_{st} = 6.36\ cm^2/m = \underline{\phi 12 @ 150}$

$M_{LL} = \frac{F}{4y}\left[l_x - \frac{a_x}{2}\right]$

$y = a_y + 0.6 l_x$

$= y = 0.075 + 0.6 \times 3.40$

$y = 2.115$



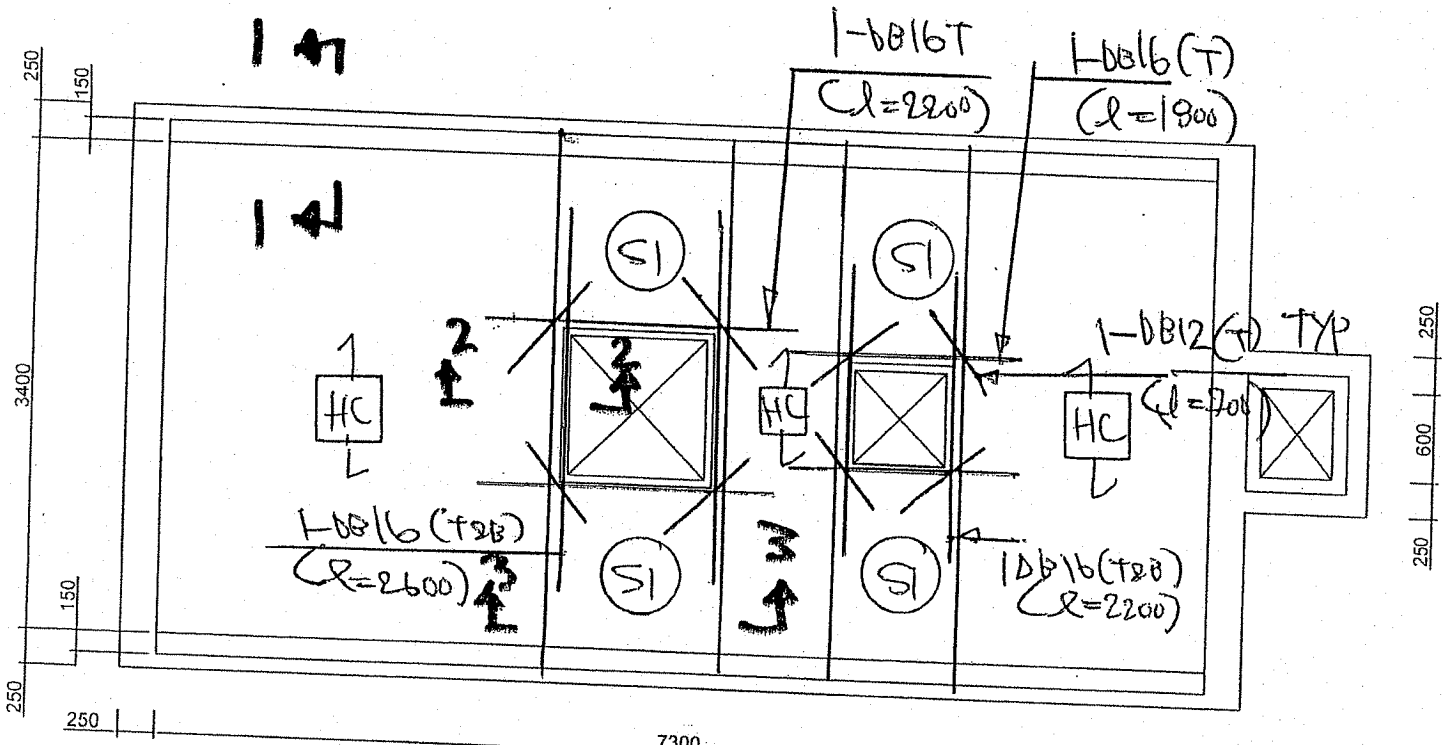
$M_{LL} = \frac{7.2}{4 \times 2.115}\left[3.4 - \frac{0.30}{2}\right]$

$= 2765\ kg.m$

$= \frac{1}{8} w_{LL} * l^2$

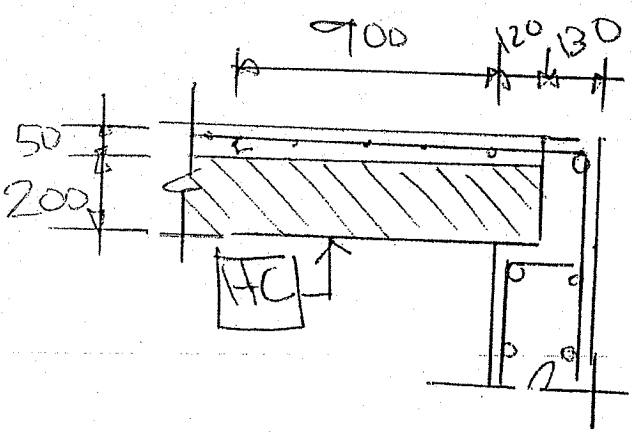
$w_{LL} = 1915\ kg/m^2$ —*

Use: Precast Hollow Core Slab. $LL = 200\ kg/m^2$

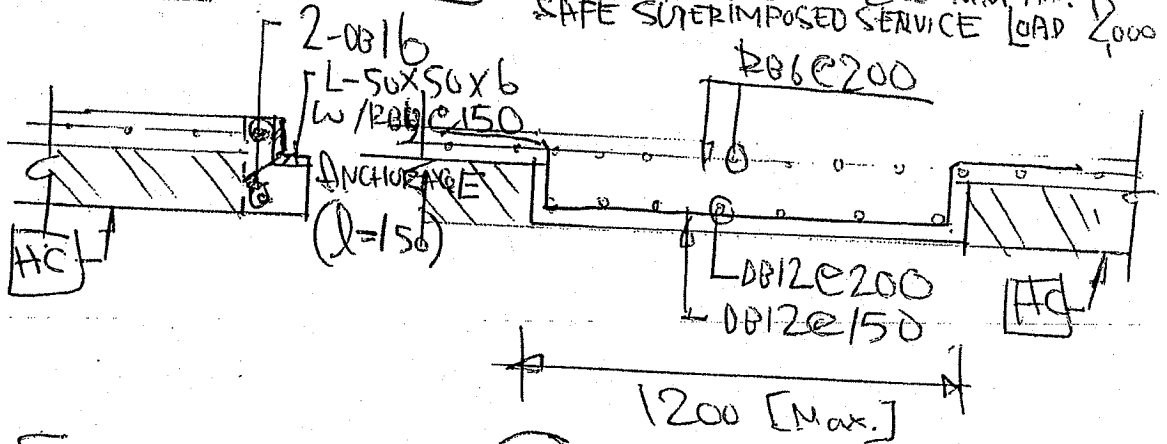


ROOF PLAN

NOTE: HC : HOLLOW CORE SLAB 200 MM THK. SAFE SUPERIMPOSED SERVICE LOAD 2,000 kg/sq.m



SECTION 1-1



SECTION 2-2

S1 : SECTION 3-3