

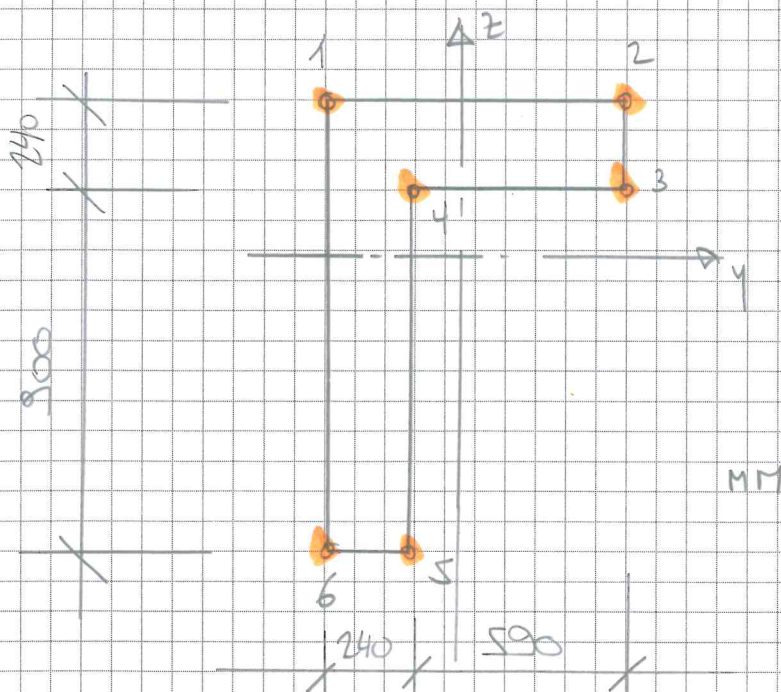
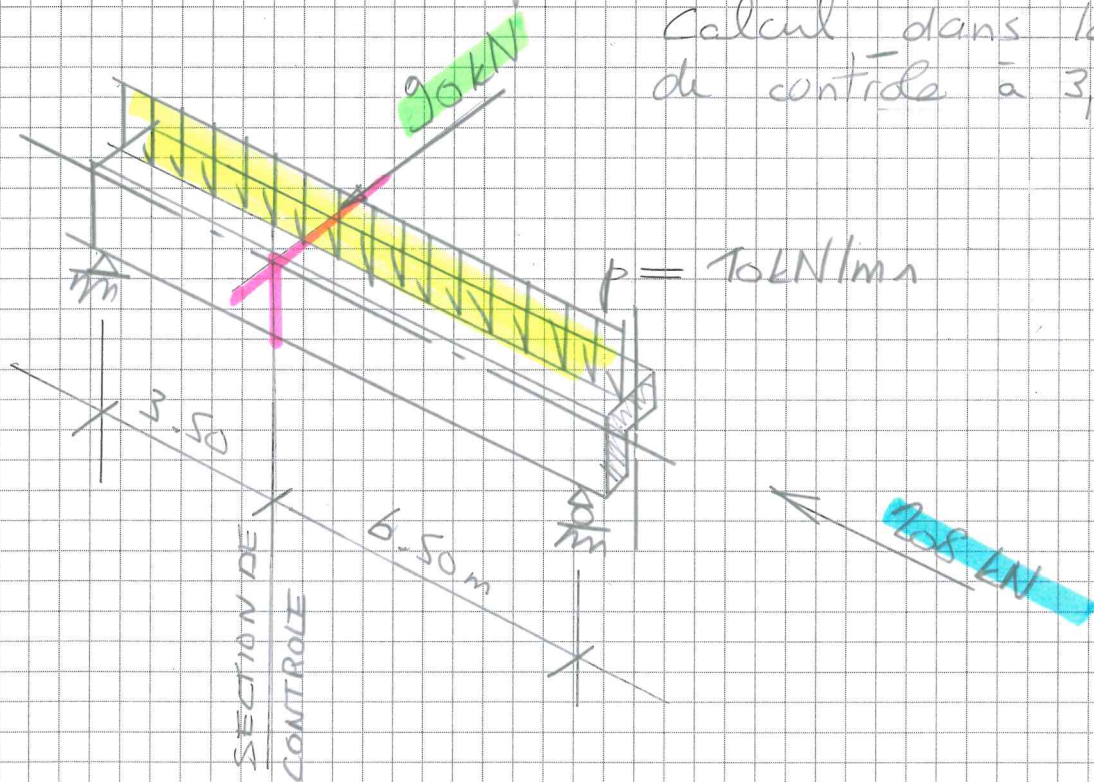
ETC 3 " RATTRAPAGE "

5.06.18

1

1. Déterminez les contraintes aux 6 coins de la poutre ci-dessous et faites un dessin de la répartition des contraintes

Calcul dans la section de contrôle à 3,50m



Forces		
F1	90	[kN]
F2	208	[kN]
p	10	[kN/m]

Dimensions		
a	3.5	[m]
b	6.5	[m]
bw	240	[mm]
btot	830	[mm]
h1	900	[mm]
h2	240	[mm]
htot	1140	[mm]
A	415200	[mm ²]

Efforts section contrôlé		
My (p)	113.75	[kNm]
Mz (F1)	204.75	[kNm]
Nc (F2)	-208	[kN]

113750000
204750000
-208000

Grandeurs géométriques		
Centre gravité cy	723.5	[mm]
Iy	49205565780.3	[mm ⁴]
Centre gravité cz	568.5	[mm]
Iz	21490945780.3	[mm ⁴]
zsup	416.5	[mm]
zinf	723.5	[mm]
ydroite	568.5	[mm]
ygauche	261.5	[mm]

Inertie = Somme (Bh³/12 + c² * A)
Centre de gravité = Somme (ci * Ai) / Somme Ai

Contraintes compression		
1	0.50	[N/mm ²]
2	0.50	[N/mm ²]
3	0.50	[N/mm ²]
4	0.50	[N/mm ²]
5	0.50	[N/mm ²]
6	0.50	[N/mm ²]

Contraintes compression $\sigma = F/A$
Contraintes flexion y-y $\sigma = My * z / Iy$
Contraintes flexion z-z $\sigma = Mz * y / Iz$

Contrainte flexion y-y		
1	-0.96	[N/mm ²]
2	-0.96	[N/mm ²]
3	-0.41	[N/mm ²]
4	-0.41	[N/mm ²]
5	1.67	[N/mm ²]
6	1.67	[N/mm ²]

Contrainte flexion y-y		
1	2.49	[N/mm ²]
2	-5.42	[N/mm ²]
3	-5.42	[N/mm ²]
4	0.21	[N/mm ²]
5	0.21	[N/mm ²]
6	2.49	[N/mm ²]

