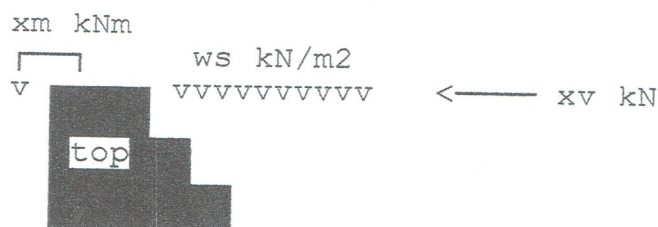


Proposed Steel Beam at:
Ty Ffynon
Dan y Ffynon
Port Talbot

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Made by:
Date: 28.01.20
Ref No:

Characteristic flexural strength for bed failure and leaf greater than 250mm thick - Table 3
 $fb(a) = \text{TABLE 3.71 for } po=7, \text{ mortar}=3$
 $= 0.15 \text{ N/mm}^2$
Partial safety factor material $\gamma_{mam}=3.1$

External loading



Applied moment at top of wall	$xm=0 \text{ kNm}$
Applied shear at top of wall	$xv=0 \text{ kN}$
Weight/unit area of surcharge	$ws=0 \text{ kN/m}^2$
Load factor external loads at top	$\gamma_{max}=1.6$
Load factor surcharge	$\gamma_{mas}=1.6$
Load factor earth pressure	$\gamma_{mae}=1.4$
Load factor self weight	$\gamma_{maf}=0.9$

Wall design

Number of steps proposed in wall $\text{steps}=2$

Step 1 Typical Analysis which is repeated for each step

Proposed height at step	$h(1)=1.00 \text{ m}$
Proposed thickness at step	$t(1)=0.450 \text{ m}$
Moment at height h earth	$me=ce*we*h(a)^3/6=0.271*18*1^3/6$ $=0.813 \text{ kNm}$
surcharge	$ms=ce*ws*h(a)^2/2=0.271*0*1^2/2$ $=0 \text{ kNm}$
Ultimate moment at height h	$mu=me*\gamma_{mae}+ms*\gamma_{mas}+(xm+xv*h(a))$ $*\gamma_{max}$ $=0.813*1.4+0*1.6+(0+0*1)*1.6$ $=1.138$
Section modulus at thickness t	$z=t(a)^2/6=0.45^2/6=0.03375 \text{ m}^3$