

subject

CONDENSATE DRAIN RATE

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$$u = \frac{1.49}{n} m^{2/3} L^{1/2} \quad (ft/s)$$

$$Q = u A' \quad cfs \quad (ft^3/s)$$

$$IF Q = 0.2 \frac{ft^3}{s} \approx 7.06 \times 10^{-3} \quad cfs \quad FOR 6" \phi NPS PIPE WITH 1" / 12" SLOPE$$

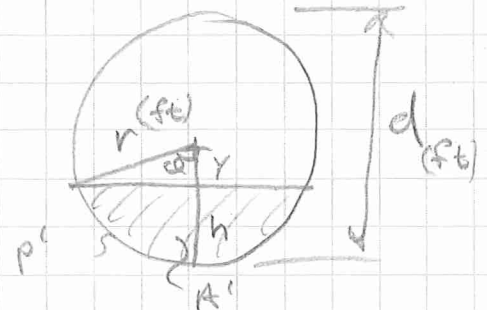
$$TRIAL AND ERROR \quad n = .015 \quad r = .25 \text{ ft} \quad i = .083$$

	$h$ ft	$Q$ cfs	$A'$ $ft^2$	$m$ ft	$u$ $ft/s$	$Q$ cfs
.24"	.02	.4027	.00263	.01308	1.589	.0042
.36"	.03	.4949	.00481	.01944	2.069	.00995
.30"	.025	.4510	.00367	.01628	1.838	.00675

$$\therefore \text{TIME TO TRAVERSE } 250' = \frac{250}{1.838}$$

$$= 136 \text{ SEC}$$

$$T = \underline{\underline{2.3 \text{ MIN.}}}$$



$$h = r - y = r - r \cos \alpha \quad (ft)$$

$$\cos \alpha = \frac{r-h}{r}$$

$$\alpha = \arccos\left(\frac{r-h}{r}\right)$$

$$A' = r^2 \left( \alpha - \frac{1}{2} \sin 2\alpha \right)$$

$$p' = 2r\alpha$$

$$m = \frac{A'}{p'} = \frac{r^2 \left( \alpha - \frac{1}{2} \sin 2\alpha \right)}{2r\alpha}$$

$$m = \frac{r}{2\alpha} \left( \alpha - \frac{1}{2} \sin 2\alpha \right)$$

$$i = \text{HYDRAULIC GRADIENT} \quad ft/ft$$

