4 5hm

B d) $\eta = \frac{1}{\gamma}$ $\frac{1}{4}\ \Omega m$ $\gamma = 40 mS/cm$

e) $J = 1/S$

$S = 2\pi r \cdot h$ $\quad 0 \leq r \leq 0{,}035$ $\quad h = 0{,}05$

$S = 0{,}1\pi r$

$J = I / 0{,}1\pi r = \frac{20}{\pi r}$ $\quad 0{,}003 < r \leq 0{,}035$

f) $E(r) = \eta J(r) = \frac{1}{4} \cdot \frac{20}{\pi r}$

$= \frac{5}{\pi} \cdot \frac{1}{r}$ $\quad R = V/I$

$V(r_2) - V(r_1) = \int_{r_1}^{r_2} E(\rho)\, d\rho = \int_{r_1}^{r_2} \frac{5}{\pi} \frac{1}{r'} dr' = \frac{5}{\pi}\left(\ln(r_2) - \ln(r_1)\right)$

$= \frac{5}{\pi}\left(\ln \frac{r_2}{r_1}\right)$

$V(r_1) = 0$ (geaard) dus: $V(r) = \frac{5}{\pi} \ln\left(\frac{0{,}035}{r}\right) V$

$V_{pen} = V(0{,}003) = \frac{5}{\pi} \ln\left(\frac{0{,}035}{0{,}003}\right) = 3{,}91$

g) $R = \frac{U}{I}$ $\quad U = \Delta V = V_A - V_B$

$V_A = pen = 3{,}91$ via f

$V_B = bilge = 0$

$3{,}91 - 0 = \Delta V$ $\quad I = 2\ A$

$3{,}91 / 2 = 1{,}955\ \Omega$