$$\sigma_\theta = \frac{\sigma_o}{3\sqrt{\alpha_1}}(2a_1 - 3a_2)\,\mathrm{Ln}\left\{\frac{2\alpha_1 r^2+\beta_1+2\sqrt{\alpha_1}\left[\alpha_1 r^4+\beta_1 r^2+\gamma_1\right]^{1/2}}{2\alpha_1 R^2+\beta_1+2\sqrt{\alpha_1}\left[\alpha_1 R^4+\beta_1 R^2+\gamma_1\right]^{1/2}}\right\}$$

$$+\frac{\sigma_o z\,(3a_2-4a_1)}{3(\beta_1^2-4\alpha_1\gamma_1)}\left\{\frac{(\beta_1\beta_1'-2\alpha_1\gamma_1')r^2-(\beta_1\gamma_1'-2\gamma_1\beta_1')}{\left[\alpha_1 r^4+\beta_1 r^2+\gamma_1\right]^{1/2}}\right. \qquad (39)$$

$$\left.-\frac{(\beta_1\beta_1'-2\alpha_1\gamma_1')R^2-(\beta_1\gamma_1'-2\gamma_1\beta_1')}{\left[\alpha_1 R^4+\beta_1 R^2+\gamma_1\right]^{1/2}}\right\}-\frac{4}{3}a_1\sigma_o\left\{\frac{r^2}{\left[\alpha_1 r^4+\beta_1 r^2+\gamma_1\right]^{1/2}}\right\}$$

$$-\frac{2}{3}a_1 b(r^2+R^2) \qquad -a_2 b(r^2-R^2)-P_1$$