The amount of fence used is \( 3x + 4y \).

So \( 3x + 4y = 1000 \) and \( y = \frac{250 - \frac{3}{4}x}{4} \).

The area is \( A = xy = x\left(250 - \frac{3}{4}x\right) = 250x - \frac{3}{4}x^2 \).

Now \( 0 \leq x \) and \( 3x \leq 1000 \) or \( x \leq \frac{1000}{3} \). So \( 0 \leq x \leq \frac{1000}{3} \).

\( A'(x) = 250 - \frac{3}{2}x \), so \( A'(x) = 0 \) when \( x = \frac{500}{3} \).

\( A(0) = 0 \)
\( A\left(\frac{500}{3}\right) = 250\left(\frac{500}{3}\right) - \frac{3}{4}\left(\frac{500}{3}\right)^2 = \frac{125000 - 62500}{3} = \frac{62500}{3} \)
\( A\left(\frac{1000}{3}\right) = 0 \)

So the maximum area is \( \frac{62500}{3} \text{ ft}^2 \), and it occurs when \( x = \frac{500}{3} \) and \( y = 250 - \frac{3}{4}\left(\frac{500}{3}\right) = 250 - 125 = 125 \).