Note that $w_1 x_1^{(i)}, w_2 x_2^{(i)}$ and $w_3 x_3^{(i)}$ don't have w_0 as a factor, and that is why their derivative wrt w_0 is zero.

$$\frac{\partial}{\partial w_0}\left[y^{(i)} - w_0 - w_1 x_1^{(i)} - w_2 x_2^{(i)} - w_3 x_3^{(i)}\right] = \frac{-\partial w_0}{\partial w_0} = -1.$$

$$\frac{\partial E}{\partial w_0} = \sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) \times -1 = -\sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)})^2$$

Likewise,

$$\frac{\partial E}{\partial w_1} = \frac{\partial}{\partial w_1}\left[\frac{1}{2}\sum_{i=1}^{m}(y^{(i)} - \hat{y}^{(i)})^2\right]$$

$$= 2 \times \frac{1}{2} \sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) \times \frac{\partial}{\partial w_1}\left[y^{(i)} - w_0 - w_1 x_1^{(i)} - w_2 x_2^{(i)} - w_3 x_3^{(i)}\right]$$

$$= \sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) \cdot \frac{\partial}{\partial w_1}\left[-w_1 x_1^{(i)}\right]$$

$$= -\sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) x_1^{(i)}$$

Applying the same procedure as above, you find the other derivatives as follows.

$$\frac{\partial E}{\partial w_2} = -\sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) x_2^{(i)}$$

$$\frac{\partial E}{\partial w_3} = -\sum_{i=1}^{m} (y^{(i)} - \hat{y}^{(i)}) x_3^{(i)}$$