$$H_{44} = \begin{bmatrix} -2\,h - 6\,\mu + 2\,U & 0 & -\mathbf{i}\,\sqrt{6}\,t \\ 0 & -2\,h - 6\,\mu + 2\,U & \frac{3\,t}{2} + \frac{\mathbf{i}}{2}\,\sqrt{3}\,t \\ \mathbf{i}\,\sqrt{6}\,t & \frac{3\,t}{2} - \frac{\mathbf{i}}{2}\,\sqrt{3}\,t & -2\,h - 6\,\mu + 2\,U \end{bmatrix}$$