$$A_k = \left(\begin{array}{ccc|ccc} 1 & & & 0 & & \\ & \ddots & & & \ddots & \\ & & 1 & & & 0 \end{array} \right) \left.\vphantom{\begin{array}{c}1\\\ddots\\1\end{array}}\right\} N+1$$

$$\underbrace{\phantom{\begin{array}{ccc}1&&\end{array}}}_{N+1} \quad \underbrace{\phantom{\begin{array}{ccc}0&&\end{array}}}_{2N+1}$$

$$\left(\begin{array}{ccc|ccc} d_1 & & & & & \\ & \ddots & & & & \\ & & d_r & & & \\ \hline & & & 0 & & \\ & & & & \ddots & \\ & & & & & 0 \end{array} \right) \left.\vphantom{\begin{array}{c}d_1\\\ddots\\d_r\\0\\\ddots\\0\end{array}}\right\} m-r$$

$$\underbrace{\phantom{\begin{array}{ccc}0&&\end{array}}}_{n-r}$$