We demonstrate the equivalence of the McNulty and Butson constructions. The McNulty-Weigert matrix on the top row is as given by McNulty-Weigert, that on the bottom row is identical to the Butson matrix that they give in their paper (essentially just a normalisation of Butson's original construction).

$$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix} \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & \zeta & \zeta^2 & \zeta^3 & \zeta^4 & \zeta^4 & 1 & \zeta & \zeta^2 & \zeta^3 \\ 1 & \zeta^2 & \zeta^4 & \zeta & \zeta^3 & \zeta & \zeta^3 & 1 & \zeta^2 & \zeta^4 \\ 1 & \zeta^3 & \zeta & \zeta^4 & \zeta^2 & \zeta & \zeta^4 & \zeta^2 & 1 & \zeta^3 \\ 1 & \zeta^4 & \zeta^3 & \zeta^2 & \zeta & \zeta^4 & \zeta^3 & \zeta^2 & \zeta & 1 \\ 1 & \zeta^3 & \zeta^2 & \zeta^2 & \zeta^3 & 1 & \zeta & \zeta^4 & \zeta^4 & \zeta \\ 1 & \zeta^2 & 1 & \zeta^4 & \zeta^4 & \zeta^3 & \zeta^2 & \zeta^3 & \zeta & \zeta \\ 1 & \zeta & \zeta^3 & \zeta & 1 & \zeta^2 & \zeta^4 & \zeta^3 & \zeta^4 & \zeta^2 \\ 1 & 1 & \zeta & \zeta^3 & \zeta & \zeta^2 & \zeta^2 & \zeta^4 & \zeta^3 & \zeta^4 \\ 1 & \zeta^4 & \zeta^4 & 1 & \zeta^2 & \zeta^3 & \zeta & \zeta & \zeta^3 & \zeta^2 \end{pmatrix} =$$

$$\begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & \zeta & \zeta^2 & \zeta^3 & \zeta^4 & \zeta^2 & \zeta^4 & \zeta & \zeta^3 & 1 \\ 1 & \zeta^2 & \zeta^4 & \zeta & \zeta^3 & \zeta^3 & \zeta^2 & \zeta & 1 & \zeta^4 \\ 1 & \zeta^3 & \zeta & \zeta^4 & \zeta^2 & \zeta^3 & \zeta^4 & 1 & \zeta & \zeta^2 \\ 1 & \zeta^4 & \zeta^3 & \zeta^2 & \zeta & \zeta^2 & 1 & \zeta^3 & \zeta & \zeta^4 \\ 1 & \zeta^3 & \zeta^2 & \zeta^2 & \zeta^3 & 1 & \zeta & \zeta^4 & \zeta^4 & \zeta \\ 1 & \zeta^2 & 1 & \zeta^4 & \zeta^4 & \zeta & \zeta & \zeta^3 & \zeta^2 & \zeta^3 \\ 1 & \zeta & \zeta^3 & \zeta & 1 & \zeta^4 & \zeta^3 & \zeta^4 & \zeta^2 & \zeta^2 \\ 1 & 1 & \zeta & \zeta^3 & \zeta & \zeta^4 & \zeta^2 & \zeta^2 & \zeta^4 & \zeta^3 \\ 1 & \zeta^4 & \zeta^4 & 1 & \zeta^2 & \zeta & \zeta^3 & \zeta^2 & \zeta^3 & \zeta \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \zeta^4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \zeta^2 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \zeta^4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \zeta & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \zeta^3 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \zeta^3 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \zeta & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \zeta^2 \end{pmatrix}$$