$$
\begin{bmatrix}
G_0^0 \\
\vdots \\
\vdots \\
G_{j-2}^2 + G_{j-1}^0 \\
G_{j-1}^1 \\
G_{j-1}^2 + G_j^0 \\
G_j^1 \\
G_j^2 + G_{j+1}^0 \\
G_{j+1}^1 \\
G_{j+1}^2 + G_{j+2}^0 \\
\vdots \\
\vdots \\
G_{m+1/2}
\end{bmatrix}
=
\begin{bmatrix}
A_0^{0,0} & A_0^{0,1} & A_0^{0,2} \\
A_0^{1,0} & A_0^{1,1} & A_0^{1,2} \\
\vdots \\
\vdots \\
u_{j-3/2} \\
u_{j-1} \\
u_{j-1/2} \\
u_j \\
u_{j+1/2} \\
u_{j+1} \\
u_{j+3/2} \\
\vdots \\
\vdots \\
u_{m+1/2}
\end{bmatrix}
\begin{bmatrix}
u_{-1/2} \\
\vdots \\
\vdots \\
u_{j-3/2} \\
u_{j-1} \\
u_{j-1/2} \\
u_j \\
u_{j+1/2} \\
u_{j+1} \\
u_{j+3/2} \\
\vdots \\
\vdots \\
u_{m+1/2}
\end{bmatrix}
\tag{1}
$$