The coefficients in potential at LO is collected to a matrix, i.e.,

$$\begin{array}{cc}
 & \begin{array}{cccccc} K^-p & \Sigma^+\pi^- & \Sigma^0\pi^0 & \bar{K}^0 n & \Sigma^-\pi^+ & \Lambda\pi^0 \end{array} \\
\begin{array}{c} K^-p \\ \Sigma^+\pi^- \\ \Sigma^0\pi^0 \\ \bar{K}^0 n \\ \Sigma^-\pi^+ \\ \Lambda\pi^0 \end{array} &
\begin{pmatrix}
2 & 1 & \frac{1}{2} & 1 & 0 & \frac{\sqrt{3}}{2} \\
1 & 2 & 2 & 0 & 0 & 0 \\
\frac{1}{2} & 2 & 0 & \frac{1}{2} & 2 & 0 \\
1 & 0 & \frac{1}{2} & 2 & 1 & -\frac{\sqrt{3}}{2} \\
0 & 0 & 2 & 1 & 2 & 0 \\
\frac{\sqrt{3}}{2} & 0 & 0 & -\frac{\sqrt{3}}{2} & 0 & 0
\end{pmatrix}
\end{array}. \tag{1}$$

The D_{ij} and L_{ij} in the NLO potential are given by

$$\begin{array}{cc}
 & \begin{array}{cccccc} K^-p & \Sigma^+\pi^- & \Sigma^0\pi^0 & \bar{K}^0 n & \Sigma^-\pi^+ & \Lambda\pi^0 \end{array} \\
\begin{array}{c} K^-p \\ \Sigma^+\pi^- \\ \Sigma^0\pi^0 \\ \bar{K}^0 n \\ \Sigma^-\pi^+ \\ \Lambda\pi^0 \end{array} &
\begin{pmatrix}
4(b_0+b_D)m_K^2 & (b_D-b_F)\mu_1^2 & \frac{(b_D-b_F)\mu_1^2}{2} & 2(b_D+b_F)m_K^2 & 0 & -\frac{(b_D+3b_F)\mu_1^2}{2\sqrt{3}} \\
(b_D-b_F)\mu_1^2 & 4(b_0+b_D)m_\pi^2 & 0 & 0 & 0 & 0 \\
\frac{(b_D-b_F)\mu_1^2}{2} & 0 & 4(b_0+b_D)m_\pi^2 & \frac{(b_D-b_F)\mu_1^2}{2} & 0 & 0 \\
2(b_D+b_F)m_K^2 & 0 & \frac{(b_D-b_F)\mu_1^2}{2} & 4(b_0+b_D)m_K^2 & (b_D-b_F)\mu_1^2 & \frac{(b_D+3b_F)\mu_1^2}{2\sqrt{3}} \\
0 & 0 & 0 & (b_D-b_F)\mu_1^2 & 4(b_0+b_D)m_\pi^2 & 0 \\
-\frac{(b_D+3b_F)\mu_1^2}{2\sqrt{3}} & 0 & 0 & \frac{(b_D+3b_F)\mu_1^2}{2\sqrt{3}} & 0 & \frac{4(3b_0+b_D)m_\pi^2}{3}
\end{pmatrix}
\end{array}, \tag{2}$$

and,

$$\begin{array}{cc}
 & \begin{array}{cccccc} K^-p & \Sigma^+\pi^- & \Sigma^0\pi^0 & \bar{K}^0 n & \Sigma^-\pi^+ & \Lambda\pi^0 \end{array} \\
\begin{array}{c} K^-p \\ \Sigma^+\pi^- \\ \Sigma^0\pi^0 \\ \bar{K}^0 n \\ \Sigma^-\pi^+ \\ \Lambda\pi^0 \end{array} &
\begin{pmatrix}
2d_2+d_3+2d_4 & -d_1+d_2+d_3 & \frac{-d_1-d_2+2d_3}{2} & d_1+d_2+d_3 & -2d_2+d_3 & \frac{-\sqrt{3}(d_1+d_2)}{2} \\
-d_1+d_2+d_3 & 2d_2+d_3+2d_4 & -2d_2+d_3 & -2d_2+d_3 & -4d_2+2d_3 & 0 \\
\frac{-d_1-d_2+2d_3}{2} & -2d_2+d_3 & 2(d_3+d_4) & \frac{-d_1-d_2+2d_3}{2} & -2d_2+d_3 & 0 \\
d_1+d_2+d_3 & -2d_2+d_3 & \frac{-d_1-d_2+2d_3}{2} & 2d_2+d_3+2d_4 & -d_1+d_2+d_3 & \frac{-\sqrt{3}(d_1+d_2)}{2} \\
-2d_2+d_3 & -4d_2+2d_3 & -2d_2+d_3 & -d_1+d_2+d_3 & 2d_2+d_3+2d_4 & 0 \\
\frac{-\sqrt{3}(d_1+d_2)}{2} & 0 & 0 & \frac{-\sqrt{3}(d_1+d_2)}{2} & 0 & 2d_4
\end{pmatrix}
\end{array} \tag{3}$$