$$
\begin{tikzcd}
\mathbb{K}^{n,1} \arrow[rrr, dotted, "{[f]_{B_1,\hat{B}_1}}"] \arrow[d, dotted, "{[\mathcal{I}d_{\mathcal{V}}]_{B_1,B_2}}"'] & & & \mathbb{K}^{m,1} \\
& \mathcal{V} \arrow[ul, "\Phi_{B_1}"'] \arrow[dl, "\Phi_{B_2}"] \arrow[r, "f"] \arrow[loop left, "\mathcal{I}d_{\mathcal{V}}"] & \mathcal{W} \arrow[ur, "\Phi_{\hat{B}_1}"] \arrow[dr, "\Phi_{\hat{B}_2}"'] \arrow[loop right, "\mathcal{I}d_{\mathcal{W}}"] & \\
\mathbb{K}^{n,1} \arrow[rrr, dotted, "{[f]_{B_2,\hat{B}_2}}"'] & & & \mathbb{K}^{m,1} \arrow[uu, dotted, "{[\mathcal{I}d_{\mathcal{V}}]_{\hat{B}_2,\hat{B}_1}}"']
\end{tikzcd}
$$