Let $\tau_1, \tau_2 \cdots \tau_k$ be sections of H whose restrictions to V' are $\tilde{f}\circ\sigma_1\circ f^{-1}, \cdots \tilde{f}\circ\sigma_k\circ f^{-1}$ respectively.

$\Rightarrow$ Since $\tilde{f}\circ\sigma_i\circ f^{-1} = \tau_i$, and f & $\tilde{f}$ are one to one, onto, $\sigma_i = 0 \Leftrightarrow \tau_i = 0$.

Let H' be a hyperplane in $\mathbb{P}^n$. $\Rightarrow (\sigma = a_1\sigma_1 + a_2\sigma_2 + \cdots + a_k\sigma_k = 0) = H'$.

$\Rightarrow \tilde{f}\circ\sigma\circ f^{-1} = a_i\circ\tilde{f}\circ\sigma_i\circ f^{-1} = a_i\tau_i \cdots (*)$

$$f : V\cap H' \longrightarrow V'\cap(\Sigma a_i\tau_i = 0).$$

$p \in H'\cap V$, $\Rightarrow \sigma(p) = 0$, $\Rightarrow f(p) \overset{?}{\in} (\Sigma a_i\tau_i = 0)$

$\Leftrightarrow \Sigma a_i \tau_i\circ f(p) = 0 \Leftrightarrow \tilde{f}^{-1}(\Sigma a_i\tau_i\circ f(p)) = 0$

$= \Sigma a_i \tilde{f}^{-1}\circ\tau_i\circ f(p) = 0 = \Sigma a_i\sigma_i(p) = \sigma(p) = 0 \cdots (*)$

Clearly, $\{\tau_1 \cdots \tau_k\}$ forms a basis for $H^0(V', \mathcal{O}(H))$.

By P170, the map f can be expressed as follows:

$$f : V \xrightarrow{\subset \mathbb{P}^n} V'$$
$$[X_0, \cdots X_n] \longmapsto \left[\frac{q_0}{p_0}, \frac{q_1}{p_1}, \cdots \frac{q_n}{p_n}\right].$$

where $\frac{q_i}{p_i}$'s are rational functions on $\mathbb{P}^n$.

For simplicity. $n = 2$

$$f : V \longrightarrow V'$$
$$[X_0, X_1, X_2] \longmapsto \left[\frac{q_0}{p_0}, \frac{q_1}{p_1}, \frac{q_2}{p_2}\right]$$