defined, too. Since $T_W - T_W' = \bar\partial(\rho S)$, $[T_W] = [T_W']$.

Moreover, $T_W' = (T_W - \rho\bar\partial S) - \bar\partial\rho \wedge S$ is smooth near $Z \cap W$, and so the integral

$$\int_Z T_W'$$

is defined and computes the intersection number $Z \cdot W$.

Near $Z \cap W = \{p_0\}$, since $T_W|U = \bar\partial S$, $T_W' = 0$ on U_{ϵ_0}. $\Rightarrow$ T_W' is smooth near $Z \cap W$.

On P393, "using the theory of currents" means that $\exists$ a theory on currents, which deals with currents integration and more, I guess.

$Z \cdot W = \int_Z T_W'$ T_W' has a singular on W usually.

If $Z_\epsilon = Z \cap U_\epsilon$, then since $T_W' = 0$ near p_0,

$$\int_Z T_W' = \lim_{\epsilon\to 0} \int_{Z - Z_\epsilon} T_W' = \lim_{\epsilon\to 0} -\int_{Z-Z_\epsilon} \bar\partial(\rho S)$$

$$= \lim_{\epsilon\to 0} \int_{\partial Z_\epsilon} S$$

by Stokes' theorem.

$$\lim_{\epsilon\to 0} \int_{Z-Z_\epsilon} T_W' + \bar\partial(\rho S) = \lim_{\epsilon\to 0} \int_{Z-Z_\epsilon} T_W = 0 \quad \text{since } T_W$$