(Note that since W_2 is the double locus of the cubic W_1, any line meeting W_2 twice must lie in W_1; this provides another proof that the chordal variety of the Veronese surface is a cubic hypersurface.)

F (Here the double locus means the locus of double points of W_1, i.e points with multiplicity 2.
Since $\deg W_1 = 3$, W_1 is a cubic. $\Rightarrow$ $W_1 = (H=0)$, H homogeneous polynomial of deg 3.
Suppose p is a double point in W_1, and l passes through p. $\Rightarrow$ We may assume $p = [0,0,1]$ and $l = (X_1 = 0)$. $\Rightarrow$ $H(X_0, 0, X_2) = 0$ is a conic passing through p. But since $\frac{\partial H}{\partial X_0} = \frac{\partial H}{\partial X_1} = \frac{\partial H}{\partial X_2} = 0$ at p, the inhomogeneous polynomial $H(x, 0, 1) = h(x)$ has a double root at $x = 0$, in other words, $H(X_0, 0, X_2)$ has a double root at $[0,0,1]$.

since $\frac{dh}{dx} = 0$ at $x = 0$.

Thus if l meets W_2 twice, then $\#(l : W_2) \geq 4$, and since W_1 is a cubic and $\#(W_1 \cdot l) \geq 4$, $W_1 \supset l$.
See the definition of the chordal variety, P173.
$\dim C(W_2) > 2$, for $W_2 \cap \mathbb{P}^2$ is one dimensional variety, i.e $W_2 \neq \mathbb{P}^2$, and $C(W_2) \supset W_2$.