First we can easily find the change of velocity
Continuity of flow gives us:

$$7 \cdot (8'' \times 6'') = v_2 \cdot (8'' \times 1.5'')$$

and we find that

$$v_2 = \frac{7 \cdot (8'' \times 6'')}{(8'' \times 1.5'')} = 28 ft/s$$

Now we can find change of pressure
Bernoulli's principle tells us, that

$$v^2/2 + p/\rho = const$$

where ρ is density of water and p is pressure. Hence

$$v_1^2/2 + p_1/\rho = v_2^2/2 + p_2/\rho$$

$$p_2 - p_1 = \rho \cdot (v_1^2/2 - v_2^2/2) = 34141.8672\, Pa$$

Change of pressure approximately is 34 kPa.