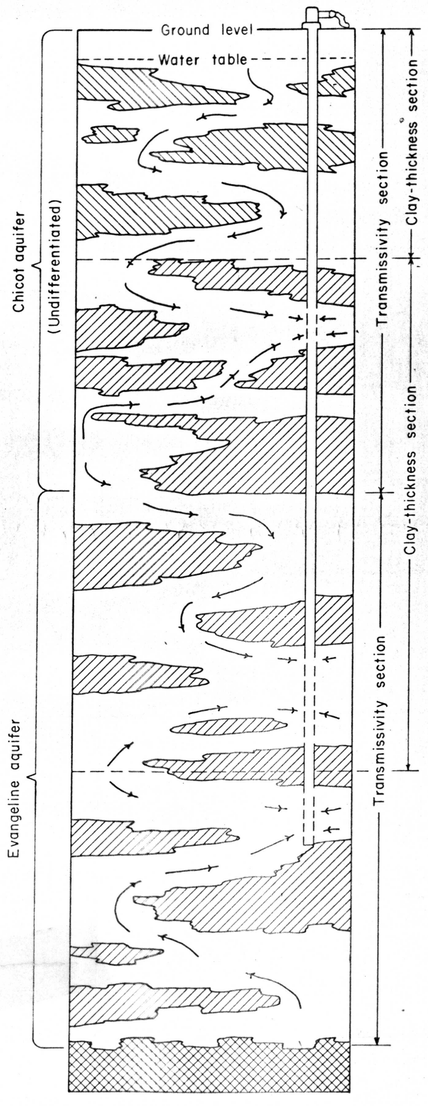
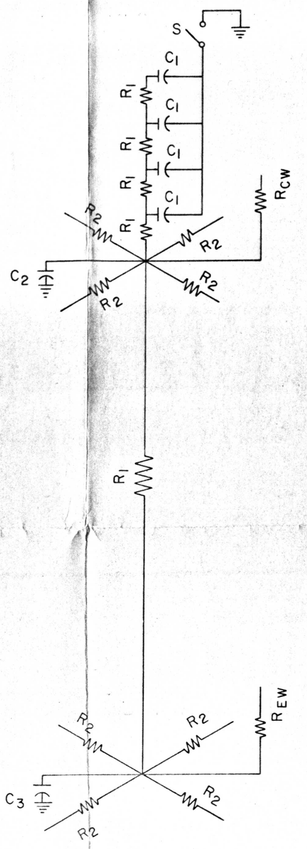
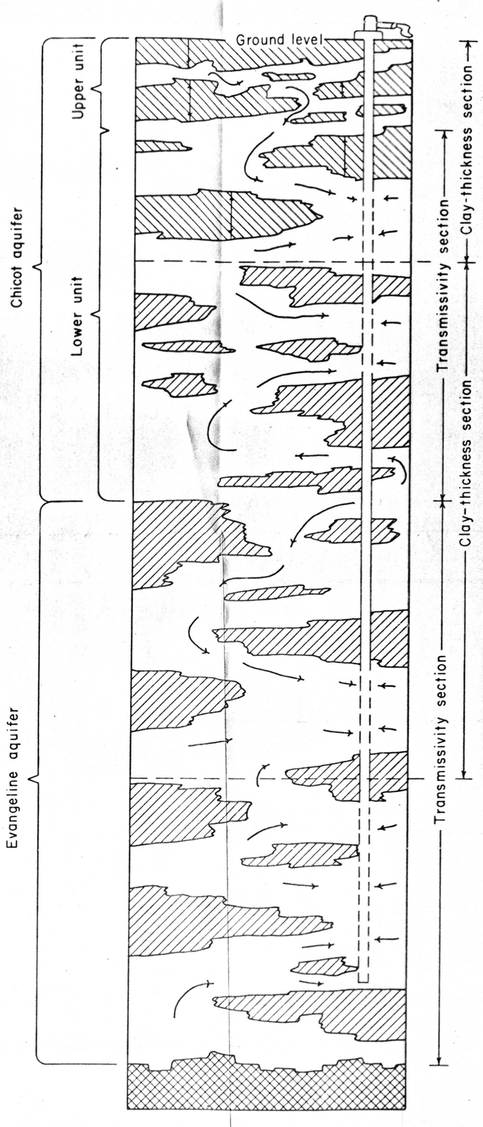
Generalized ground-water flow circuit
northern Houston district



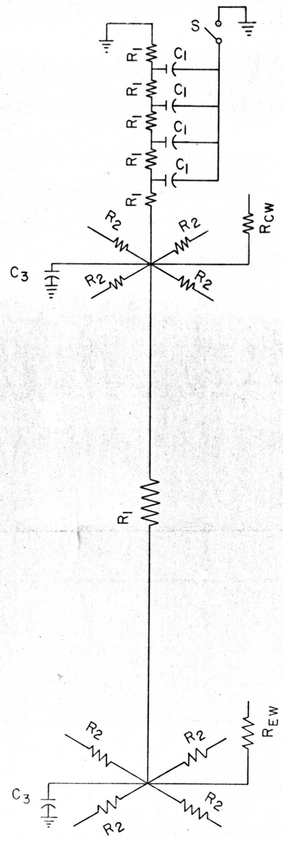
Analogous electrical circuit



Generalized ground-water flow circuit
central and southern Houston district

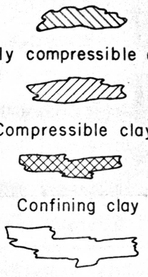


Analogous electrical circuit

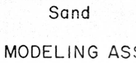


EXPLANATION

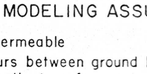
DESIGNATION	ELEMENT	SIMULATES
R_1	Resistor	Effective vertical hydraulic conductivity
R_2	Resistor	Horizontal transmissivity
C_1	Capacitor	Storage of water in compressible clays
C_2	Capacitor	Storage of water in water-table aquifer
C_3	Capacitor	Storage of water in artesian aquifer
S	Switch	Inelastic compression of clays
R_{CW}	Resistor	Pumping well in the Chicot aquifer
R_{EW}	Resistor	Pumping well in the Evangeline aquifer



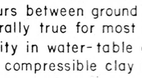
Easily compressible clay



Compressible clay



Confining clay



Sand

HYDROLOGIC MODELING ASSUMPTIONS

1. Confining clay is impermeable
2. Clay compaction occurs between ground level and center line of Chicot aquifer. (Generally true for most of the Houston district)
3. Change of transmissivity in water-table aquifer is negligible
4. Storage coefficient of compressible clay is constant with time and loading
5. Clay swelling of compressible clays in water-table aquifer is negligible

Not to scale

FIGURE 28.- Diagrams illustrating the analogy of electrical current to ground-water flow