

Results and Discussion Hydrogeologically, the various litho-units of the shallow aquifer in the study.4 area can be grouped by coarse sand, sandy clay, silt and fractured limestone underlined by impervious clay (P1, P2, P3, P6, P9, P10 and P11) or limestone (P4, P5, P7 and P8) which prevent downward of irrigation water (Figure 7). The deteriorating mechanism of salt solution depends on two sources of water: humidity from condensation and groundwater from capillary rise. In order to protect the antiquities from further accelerated deterioration, lowering of groundwater to safe levels was needed. Eventually, the salts will accelerate the flaking erosion and the fall of clay plaster and cement that has long afflicted the Hawarah and Al-Lahun pyramids as well as the salt crystallization in the entrance (Figure 11). As well as, the subsoil water moves from the high level land located in the middle of the concerned area towards the low land (old cultivated land) located in the periphery of the new reclaimed land and the two ancient pyramids (Hawarah and Al-Lahun) causing serious waterlogging and damage of the old cultivated land. The observations on groundwater fluctuation (Figure 8) from January (2008) to January (2010) demonstrate a relatively increase in water table by about 0.02 m (the lowest at P3) to 0.08 m (the highest at P11).