In recent years, with the advancement in technologies, construction engineers have been working to replace quarry sand by raw earth in the construction field. For this purpose, several studies have been launched on these materials. In this work, we have studied the corrosion of a structural steel immersed in loamy soil. To achieve that, electrochemistry methods such as electrochemical impedance spectroscopy (EIS), voltammetry, and free potential measurements were performed on a radiometer, potentiometer PGZ 301 to test the samples. The results were adjusted using ZSimpWin software to determine the kinetic parameters such as corrosion potential and corrosion rate. The results showed that the evolution of the corrosion rate goes through two phases, the first phase corresponds to a decrease from an initial value around 35 µm/year to reach the value 14 µm/year after an immersion time between 750 and 900 hours. The second phase shows a fluctuation of the corrosion rate followed by a long stabilization around the value 22 µm/year after 7000 hours immersion time. The corrosion rate values obtained by the two methods, Stern Gerry and linear polarization were compared to validate our calculations. The energy dispersive X-ray analysis (EDS) and dynamic recrystallization (DRX) analysis showed the formation of a passive film around the steels which was composed of different species such as magnetite, etc., where the film plays a very important role on the evolution of the corrosion process.