To understand site characteristics of seismic stations is important to evaluate observation environment and to construct the optimum condition. As a way to understand site characteristics, we estimated the thickness of sedimentary layer above the basement rock using microtremor data. We used two different methods. One is to determine the thickness of the sedimentary layer or the depth to the basement rock using H/V (Horizontal to Vertical) spectral ratio method. The other is to obtain shear wave velocity profiles from dispersion curves using HRF-K (High Resolution Frequency-Wavenumber) method. These methods have the advantage that they can be applied to urban areas where have difficulties for passive methods (borehole etc.). We analyzed the shear wave velocity profiles and the thickness of sedimentary layer from microtremor data at the Geumsan (KMS) acceleration station of the Korea Meteorological Administration (KMA) using HRF-K and H/V spectral ratio methods. Microtremor data were recorded for 90 minutes at 200Hz sampling rate using four short-period seismometers after setting up 9 triangle arrays. We obtained the shear wave velocity profiles from 2(15m 30°, 40m 30°) array data sets using HRF-K method. Also, peak frequency was determined from microtremor data at the center of the arrays by the H/V spectral ratio method and the value was 2.6Hz. The peak frequency in the H/V spectral ratio was then used to obtain the thickness of sedimentary layer assuming the average shear wave velocity obtained by HRF-K method. Two results from HRF-K (22m) and H/V spectral ratio (23m) methods closely resemble each other. The results of this study indicate that two methods are the effective methods to estimate site characteristics at KMS station. It is expected to be used to evaluate seismic observation environment as KMA expends the seismic observational network.