A fundamental question in the study of high-dimensional data is as follows: Given high-dimensional point cloud samples, how can we infer the structures of the underlying data? In manifold learning, we assume the data is supported by a low-dimensional space with a manifold structure. However, such an assumption may be too restrictive in practice when we are given point cloud samples not of a manifold but of a stratified space, which contain singularities and mixed dimensionality.