Evaluating socioeconomic status in complex societies using zooarchaeological data has been the focus of several studies in the past two decades. Taking a novel approach that uses a theoretically informed model and food utility indices to facilitate interpretation of frequencies of skeletal parts in zooarchaeological collections, this project establishes a new method for interpreting the socioeconomic meaning of faunal material in complex societies. Newly developed food utility indices for pigs (Sus scrofa) and cattle (Bos taurus) operationalize the model. The Roman site of Maasplein, Nijmegen, the Netherlands is used as a case study to evaluate the new method. A discussion of recovery methods and impacts on interpretations of diet are included in addition to a faunal report on Maasplein. When applied to the pig remains from Roman villa at San Giovanni di Ruoti, Italy (1st-6th century CE), model results indicate that for the early phases of the villa, as predicted, there are relatively more high-yield parts, reflecting high status, while the last phase contains relatively more low-yield parts. This supports conclusions of the original excavators that in later phases of the site, it was operating as a commercial farm. Roman Maasplein is a low-status urban site and matching the model’s prediction, the assemblage of cattle remains included relatively high frequencies of low-yield skeletal parts. These tests of the model demonstrate that food utility indices in conjunction with other contextual data can be used to identify socioeconomic status and suggest reasons for deviations from expectations of skeletal part frequencies.