Initial research has been conducted on the feasibility of developing soil-based controlled low-strength material (CLSM) mixtures that could be used to backfill large excavations at construction sites. Often the excavated material at a construction site contains soils that are not suitable for use as compacted backfill. This paper discusses the feasibility of the use of soil-based CLSM to lower cost and to use the materials normally disposed into a spoil pile. By incorporating such materials into a CLSM mixture, the land area needed for spoil-pile disposal may be reduced, therefore reducing real estate costs and providing good land-stewardship practices.

The CLSM mixtures investigated include replacement of portland cement by Class C fly ash, replacement of Class F fly ash with a soil classified by the Unified Soil Classification System1 (USCS) as a ML or CL soil, replacement of Class F fly ash with sand, and replacement of Class F fly ash with a mixture of soil and sand. The consistency and the unconfined compressive strength of the CLSM mixtures was measured.