

1. Introduction

Sustainability is a broad topic with applications in many disciplines. The purpose of this report is to provide geotechnical engineers with information about applying sustainability concepts in engineering practice. It is not necessary for the reader to have any previous knowledge of sustainability to benefit from this report; however, ASCE (2004) provides additional background information about sustainability for those who desire a broader understanding of the topic.

This report contains the following main sections:

- *What is Sustainability?* (Section 2): This provides definitions of sustainability and other terms related to the topic.
- *Benefits of Incorporating Sustainable Practices in Geotechnical Engineering* (Section 3): This section focuses on federal initiatives, economic benefits, and expedited permitting incentives associated with sustainable development.
- *Incorporating Sustainable Practices in Geotechnical Engineering* (Section 4): This section describes several ways that geotechnical engineers can incorporate sustainability into their designs.
- *Reuse of Industrial By-Products and Wastes* (Section 5): This summarizes three key references that were found pertaining to the reuse of industrial by-products. It also provides tables that summarize over 50 additional references.
- *Innovative Sustainable Geotechnical Systems* (Section 6): This section provides an overview of two innovative geotechnical systems.
- *Rating Systems* (Section 7): This provides an overview of three rating systems that judge sustainability of design, construction, and operation of a green building.
- *Sustainable Business Practices* (Section 8): This section provides examples that engineering firms and agencies can use to incorporate sustainable practices into their own businesses.