
Standard Practice for Digital Interchange of Geotechnical Data

AASHTO Designation: PP 102-20 (2022)¹

First Published: 2020

Reviewed but Not Updated: 2022

**Technical Subcommittee: 1b, Geotechnical Exploration,
Instrumentation, Stabilization, and Field Testing**



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, D.C. 20004**

Digital Interchange of Geotechnical Data

AASHTO Designation: PP 102-20 (2022)¹



First Published: 2020

Reviewed but Not Updated: 2022

Technical Subcommittee: 1b, Geotechnical Exploration, Instrumentation, Stabilization, and Field Testing

INTRODUCTION

Standardization for transmitting data electronically is necessary to consistently and efficiently convey data among computer software, applications, Geographic Information System (GIS) visualization platforms, and geotechnical data management systems. This Standard defines practice that will allow the consistency, completeness, and integrity of geotechnical data to be maintained after data are generated and checked. Moreover, this Standard defines practice that will allow software and system developers to expect that geotechnical data will be transferred consistently. More efficient programming, automation, data management and interchange, and workflow operations related to geotechnical investigations, testing, analyses, reporting, designs, bid-package preparation, and construction and performance monitoring can be achieved as a result of the adoption and implementation of this Standard. In addition, by following the guidelines suggested in this Standard, geotechnical data can be easily managed and retrieved as an asset with intrinsic value for future applications. This standard transfer protocol may also be expanded to facilitate the systematic reporting of geotechnical related performance measures for asset management purposes in the future.

1. SCOPE

- 1.1. This standard practice requires the standard data transfer protocol for geotechnical data known as Data Interchange for Geotechnical and Geoenvironmental Specialists (DIGGS).
 - 1.1.1. The most current version of the DIGGS schema is actively updated, maintained, and accessed at <https://www.geoinstitute.org/special-projects/diggs/schema-tools>.
 - 1.1.2. The DIGGS schema is developed and expanded as open-source code. The Geo-Institute (GI) of the American Society of Civil Engineers (ASCE) maintains the DIGGS schema under the direction of the GI's DIGGS Advisory Council. Each released version is vetted by the GI's DIGGS Standard Committee and the DIGGS Advisory Council.
- 1.2. All geotechnical data presented as numerical values shall conform to the guidelines for significant digits and rounding established in [ASTM D6026](#) and reported as established in the DIGGS schema.
- 1.3. While this Standard defines practice that allows the consistency and completeness of data to be preserved, this Standard does not purport to cover quality control or quality assurance measures that should be required for the original geotechnical data. Procedures to assure and manage data quality and security are beyond the scope of this standard.

Note 1—Geotechnical data transferred from sources that do not capture the data defined in the schema create the potential for incomplete data when transferred into any system requiring this

standard. The DIGGS schema is designed to be extensible in order to capture data not currently captured in the schema, or to accommodate new information and test procedures.

- 1.4. Geotechnical interpretation, reduction, and application of transferred data are beyond the scope of this standard.

2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards:*

- [M 145](#), Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
- [R 13](#), Conducting Geotechnical Subsurface Investigations
- [T 88](#), Particle Size Analysis of Soils
- [T 89](#), Determining the Liquid Limit of Soils
- [T 90](#), Determining the Plastic Limit and Plasticity Index of Soils
- [T 99](#), Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and 305-mm (12-in.) Drop
- [T 100](#), Specific Gravity of Soils
- [T 180](#), Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and 457-mm (18-in.) Drop
- [T 193](#), The California Bearing Ratio
- [T 194](#), Determination of Organic Matter in Soils by Wet Combustion
- [T 206](#), Penetration Test and Split-Barrel Sampling of Soils
- [T 207](#), Thin-Walled Tube Sampling of Soils
- [T 208](#), Unconfined Compressive Strength of Cohesive Soil
- [T 215](#), Permeability of Granular Soils (Constant Head)
- [T 216](#), One-Dimensional Consolidation Properties of Soils
- [T 217](#), Determination of Moisture in Soils by Means of a Calcium Carbide Gas Pressure Moisture Tester
- [T 223](#), Field Vane Shear Test in Cohesive Soil
- [T 225](#), Diamond Core Drilling for Site Investigation
- [T 226](#), Triaxial Compressive Strength of Undrained Rock Core Specimens without Pore Pressure Measurements
- [T 233](#), Density of Soil In-Place by Block, Chunk, or Core Sampling
- [T 236](#), Direct Shear Test of Soils under Consolidated Drained Conditions
- [T 265](#), Laboratory Determination of Moisture Content of Soils
- [T 267](#), Determination of Organic Content in Soils by Loss on Ignition
- [T 272](#), Family of Curves—One-Point Method
- [T 289](#), Determining pH of Soil for Use in Corrosion Testing
- [T 290](#), Determining Water-Soluble Sulfate Ion Content in Soil
- [T 291](#), Determining Water-Soluble Chloride Ion Content in Soil
- [T 296](#), Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression
- [T 297](#), Consolidated, Undrained Triaxial Compression Test on Cohesive Soils
- [T 306](#), Progressing Auger Borings for Geotechnical Explorations
- [T 311](#), Grain-Size Analysis of Granular Soil Materials