

## SECTION 02324

# COMPACTION

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Compaction of fill material for embankment foundations, areas through cuts, embankments, dikes, backfill, and other materials.

#### 1.2 REFERENCES

- A. AASHTO T 99: Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb.) Rammer and a 305 mm (12 in.) Drop. (Method D)
- B. AASHTO T 180: Moisture-Density Relations of Soils Using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop. (Method D)
- C. AASHTO T 310: In-place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

#### 1.3 ACCEPTANCE TESTING (BY DEPARTMENT)

- A. Density Requirement: The Engineer accepts a test lot following the standard for average density - not less than 96 percent of maximum laboratory density, and when no single determination is lower than 92 percent of maximum laboratory density.
- B. Test Lot for Embankment and Subgrade:
  - 1. Number of tons or cubic yards of embankment placed and compacted during each production day.
  - 2. Divide test lots into sublots of approximately 3000 tons or 2000 yd<sup>3</sup> and 6000 yd<sup>2</sup> in cut sections, and take one random density test within each subplot.
- C. Test Lot for Backfill:
  - 1. Engineer accepts backfill at pipe culverts, small structures, concrete box culverts, and bridges based on acceptance of the average of four density determinations in a test area.
  - 2. A test lot will not exceed 200 yd<sup>3</sup> of material or be more than one pipe culvert or small structure.

- D. Test Lot for Embankment for Bridge:
  - 1. Take at least six random density tests at both ends of the bridge in each 12-inch layer.
    - a. Conform to AASHTO T 180, Method D.
    - b. Randomly select four of the tests.
    - c. Select two of the test within 2.0 feet of the outside perimeter of each layer.
  - 2. Engineer takes density tests:
    - a. In the backfill material replacing sub-excavated areas.
    - b. In the lower layers of required surcharge as shown.

#### **1.4 PAYMENT PROCEDURES**

- A. This work is considered incidental to other items and no separate measurement or payment will be made.

#### **PART 2 PRODUCTS Not used**

#### **PART 3 EXECUTION**

##### **3.1 COMPACTION**

- A. Moisten or de-water backfill material to obtain optimum moisture for compaction operations.
- B. Use a hand-operated vibratory compactor or a vibratory roller adjacent to backwalls of structure abutments and approach slabs.
- C. Conform to:
  - 1. AASHTO T 180, Method D for A-1 soils.
  - 2. AASHTO T 99, Method D for all other soils.
  - 3. AASHTO T 310 for in-place field density.

END OF SECTION