

SECTION 31 05 13 COMMON FILL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Common fill materials.

1.2 REFERENCES

- A. ASTM C 136: Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D 1883: Standard Test Method for CBR (California Bearing Ratio) of Laboratory-Compacted Soils.
- C. ASTM D 2487: Standard Test Method for Classification of Soils for Engineering Purposes.
- D. ASTM D 2844: Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils.
- E. ASTM D 3282: Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes.
- F. ASTM D 3740: Standard Recommended Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

1.3 SUBMITTALS

- A. Prior to delivering material to site, identify.
 - 1. Name of Supplier and source, And.
 - 2. Gradation of common fill material.
- B. If a change in source of material is required, submit name of Supplier, source and gradation analysis of material prior to delivery to site.

1.4 QUALITY ASSURANCE

- A. Use a laboratory that follows and complies with Section 01 45 00 and ASTM D 3740.
- B. Reject common fill products that do not meet requirements of this section.
- C. Remove any product found defective after installation and install acceptable product at no additional cost to OWNER.

1.5 ACCEPTANCE

- A. General:
 - 1. Acceptance is by Lot. One Lot is one day's production.
 - 2. Dispute resolution; Section 01 35 10.
- B. Roadway Backfill: Sub-lot size is 5,000 tons.

PART 2 PRODUCTS

2.1 BORROW

A. Classifications A-1-a through A-4, ASTM D 3282.

2.2 GRANULAR BORROW

A. Classifications A-1-a, A-1-b, A-2-4, or A-3, ASTM D 3282.

B. Material meets design CBR-value (ASTM D 1883) or R value (ASTM D 2844) for suitability of source, not for project control testing.

2.3 GRANULAR BACKFILL BORROW

A. Classification A-1, ASTM D 3282.

B. Well graded.

C. Particle size; 2 inch maximum.

D. Material meets design CBR-value (ASTM D 1883) or R value (ASTM D 2844) for suitability of source, not for project control testing.

2.4 RECYCLED FILL

A. Material: Pulverized portland cement concrete, pulverized asphalt pavement or combination, either mixed with or not mixed with a new aggregate.

B. Gradation: Meet the requirements of this Section based upon use; e.g. borrow, granular borrow, granular backfill borrow, etc.

2.5 NATIVE

A. When allowed by ENGINEER, material obtained from Excavations may be used as fill, provided organic material, rubbish, debris, and other objectionable materials are removed and CONTRACTOR has submitted the appropriate Proctor data (see Section 33 05 05).

2.6 CLAY

A. Classification CL, CL-ML, or ML, ASTM D 2487.

B. Free of organic matter, frozen material, debris, rocks, and deleterious materials.

C. Homogeneous, relatively uniform.

2.7 SAND

A. Friable river or bank aggregate, free of loam and organic matter. Graded as follows:

<u>Sieve</u>	<u>Percent Passing by Weight</u>
3/8	100
100	1 - 10

2.8 GRAVEL

A. Material: Rock, stone, or other high quality mineral particle or combination.

B. Gradation: ASTM D 448 narrow band.

1. Sewer Rock.

<u>Nominal Size</u>	<u>ASTM Size No.</u>
3.5 to 1.5"	1
2.5 to 1.5"	2
2 to 1"	3
1.5 to 3/4"	4
1 to 1/2"	5

2. Pea Gravel.

<u>Nominal Size</u>	<u>ASTM Size No.</u>
3/4 to 3/8"	6
1/2 to No. 4	7
3/8 to No. 8	8
No. 4 to No. 16	9
No. 4 (screenings)	10

2.9 TOPSOIL

A. Chemical Characteristics:

1. Acidity/alkalinity range: pH 5.5 to 7.7
2. Soluble Salts: Less than 2.0 mmhos/cm.
3. Sodium Absorption Ratio (SAR): less than 3.0
4. Nitrogen (NO₃N): 48 ppm minimum
5. Phosphorus (P): 11 ppm minimum
6. Potash (K): 130 ppm minimum
7. Iron (Fe): 5.0 ppm minimum

B. Physical Characteristics:

1. Fertile, loose, friable.
2. Containing more than 2 percent organic matter.
3. Free of weeds, subsoil, lumps or clods of hard earth, plants or their roots, sticks, toxic minerals, chemicals and stones greater than 1-1/2 inch diameter.
4. Composition

<u>Material</u>	<u>Percent Passing</u>
Sand	15 – 60
Silt	10 – 70
Clay	5 – 30

2.10 SOURCE QUALITY CONTROL

- A. Verify gradation, ASTM C 136.
- B. Select Samples on a random location and time basis.
- C. If tests indicate materials do not meet specified requirements, change

materials and retest at no additional cost to OWNER.

PART 3 EXECUTION

3.1 INSTALLATION

A. Trenches, Section 33 05 20.

END OF SECTION