

PART 2 - MATERIALS

2.01 SELECT FILL MATERIAL

A. Type 1 (Select Fill)

1. Type 1 material shall consist of homogenous soils free of organic matter and rocks larger than 6" in diameter and possessing an Atterburg Plasticity index (P.I.) from 3% to 15%, and with a liquid limit of 30% or less, or as shown on the plans (P.I. from 10% to 20% is required under all concrete slabs and major structures).

B. Type 2 (Sand)

1. Type 2 material shall be a select, granular material free from organic matter and, when tested in accordance with ASTM D 422, shall conform to the following requirements

<u>U.S. Standard Sieve Size</u>	<u>Percent by Weight Passing</u>
3/4"	100
#4	95 to 100
#8	80 to 100
#16	50 to 85
#30	25 to 60
#50	10 to 30
#100	2 to 10

C. Type 3 (Impervious Soils) Clay

1. Type 3 material shall be clay with at least 95% of the particles passing a No.200 sieve and a plasticity index between 15 and 30. Permeability for Type 3 Material will meet  $1 \times 10^{-7}$  cm/s.

D. Type 4 (Drain Rock/Gravel)

1. Drain rock, as shown on the drawings, under structures, and behind retaining walls, shall be clean, washed, sound, and durable well-graded rock, crushed gravel, or gravel. When tested in accordance with ASTM D 422, this material shall conform to the following requirements:

5. The backfill around and within ten feet (10') of the exterior wall of all structures shall be brought up in horizontal layers of uniform thickness. Each such layer shall not be more than eight inches (8") in depth when measured loose. As may be necessary to attain maximum compaction the backfill material shall be moistened by sprinkling lightly with water. After placing, each layer of backfill shall be thoroughly and uniformly compacted by means of mechanical tampers or small impact type tamping rollers. The compacting equipment and the manner of its use shall be subject to the approval of the Engineer. Compaction within this ten foot zone around structures shall be such as to attain a density equal to or greater than ninety-five percent (95%) maximum density as obtained by AASHTO T-99.
6. The method of compaction for berms, levees, and fill areas shall be by equipment and methods approved by the Engineer and shall attain a density equal to or greater than ninety percent (95%) maximum density as obtained by AASHTO T-99.
7. The method of compaction of backfill outside the ten foot zone around structures and except as specified for backfill of pipeline trenches shall be at the option of the Contractor, and approved by the Engineer, and shall attain a density equal to or greater than eighty-five percent (85%) maximum density as obtained by AASHTO T-99.

#### H. Structural Backfill

1. Structural backfill shall be constructed at the locations and to the lines and grades indicated on the plans. Unless otherwise indicated, structural backfill shall be Type 1 material. The material shall be placed in horizontal layers not exceeding 8" in loose depth and shall be moisture conditioned to at least 3% of optimum moisture such that the required degree of compaction may be obtained.
2. Each layer shall be compacted by power-operated tampers, rollers, or other suitable equipment at a dry density equal to 95% of maximum density. Each layer shall be compacted to the specified density prior to placing subsequent layers. The thickness of the loose layer may be increased when in-place density tests satisfactory to the Engineer show that the specified density can be obtained. Dewatering must be maintained during the placement of compacted backfill. When backfill is subgrade for walks, roadways, foundations, or slabs, it shall be structural backfill compacted to a dry density equal to 95% of maximum. Compaction shall be done in a manner that will not damage adjacent or buried facilities. In place, field density tests shall be conducted to verify compaction.