

SECTION 32 05 00

COMMON WORKS FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Furnished Topsoil
 - 2. Water
 - 3. Soil Amendments
 - 4. Mulch.
 - 5. Compost
 - 6. Graded Aggregate Base (GAB)
 - 7. Coarse Sand
 - 8. ASTM Aggregates
 - 9. Drain Rock
 - 10. Geotextiles

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

- A. Georgia Department of Transportation (GDOT)
 - 1. Department of Transportation, State of Georgia Standard Specifications, Construction of Roads and Bridges, 2013 Edition. Unless otherwise noted, conform with GDOT Standard Specifications for materials.
- B. American Society for Testing Materials (ASTM)
 - 1. ASTM D1557- laboratory compaction characteristics of soil using Modified Effort.

1.3 SUBMITTALS

- A. Product data for material proposed for the work.
- B. Copies of all soil testing results for lawn and landscape planting areas, including but not limited to the following data:
 - 1. Include the recommended ratio and amounts (lbs per 1000 sq-ft) of fertilizing.
 - 2. Amendments of lime, organic matter.

1.4 SITE CONDITIONS

- A. Store materials only in areas designated for Contractor's use.

PART 2 - PRODUCTS

2.1 FURNISHED (IMPORT) TOPSOIL

- A. Furnished Topsoil is adapted to the sustenance of plant life and harvested from fields or development sites. Manufactured topsoil where components such as sand,

organic matter, and chemicals are added to mineral soil are not acceptable. Furnished topsoil shall reasonably achieve the following characteristics:

1. Texture – USDA loam, sandy clay loam, or sandy loam with clay between 15 and 25% and combined clay and silt content no more than 55%.
2. Organic Material – 2.0 to 20% by mass
3. pH - between 5 and 7.
4. Uniform quality and free from foreign material such as hard clods, sod, stiff clay, hard pan, stones larger than 1 inch diameter, lime cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or other undesirable materials. It shall also be reasonably free from weeds and objectionable plant material.

- B. All sources of Furnished (Import) Topsoil shall be approved by the Design Professional prior to delivery to site. Test proposed topsoil and submit test results for approval, along with a minimum 1 gallon labeled soil sample.
- C. Stockpiled existing topsoil at the site meeting the above criteria may be acceptable.
- D. Furnished Topsoil shall be screened.
- E. Imported Topsoil shall be at no additional cost to the Owner.

2.2 WATER

- A. Furnish and pay for water used in this work. Furnish watering trucks, hoses and other temporary watering equipment (sprinklers, stands. etc.) required for work.
- B. When used for plant irrigation, water shall be suitable and free from ingredients harmful to plant life.

2.3 SOIL APPURTENANCES (AMMENDMENTS)

- A. Mulches and Composts: See separate Articles this specification.
- B. Ground Limestone: Lime shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates and ground to such a fineness that 50 percent will pass through a 200-mesh sieve and 90 percent will pass through a 20-mesh sieve. Coarser material will be acceptable, provided the specified rates of application are increased proportionately on the basis of quantities passing through the 100-mesh sieve.
- C. Sand: Clean, washed sand, free of toxic materials.
- D. Sawdust: Rotted sawdust, free of chips, stones, sticks, soil or toxic substances and with 7.5 lbs nitrogen fertilizer uniformly mixed into each cubic yard of sawdust.
- E. Peat Moss: granulated sphagnum free of woody substances, brown in color, free of stones and mineral matter, air dry condition.
- F. Peat Humus: When shown, provide a domestic product of peat humus consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown, clean, low in content of mineral and woody material, mildly acid, and granulated or shredded.
- G. Commercial Fertilizer: Fertilizer formula complying with State and Federal fertilizer laws. Deliver fertilizer to the site in original, unopened containers bearing the manufacturer's certificate of compliance covering analysis and primary nutrient (N,

P, K) concentrations. **To protect public health and waterways, do not over apply any fertilizer.** Unless otherwise shown on the plans or specified in other Sections, fertilizer application is as follows:

1. Lawns: Provide nutrients in ratios and quantities (lbs per 1000 sq-ft, or lbs per acre) as recommended from soil testing. Provide nitrogen in a form that will be available to lawn during initial growth period (approximately 50% fast release) as well as in slow release organic forms (approximately 50%).
 2. Trees and shrubs (planting beds): Provide in the ratios and quantities (lbs per 1000 sq-ft, or lbs per cubic yard of soil) in accordance with results of soil tests.
- H. Ammonium Nitrate: Use where specified or where a fast release nitrogen fertilizer is required. Commercial product in dry granular form of recent manufacture (within last 6 months) and delivered in the original, unopened containers each bearing the manufacturer's guaranteed statement of analysis, containing not less than 33.0% percent Nitrogen.
- I. Pre-emergent Weed Control: shall be Scotts Pro Grow Ornamental Herbicide 2 (granular) and Pro Turf Southern Weed Grass Control #83204 (or approved equal) as manufactured by Scotts Pro Grow, Marysville, Ohio 43041.

2.4 MULCHES FOR GRASSING AND EROSION

- A. Provide mulches of the types and depths shown, that are clean and free from debris, and reasonably free of weeds. Mulches may include, but are not limited to:
1. Bermuda grass hay.
 2. Threshed wheat rye or oat straw.

2.5 COMPOST

- A. Use compost that meets the following:
1. Composed of decomposed organic material.
 2. Organic material is disinfected through composting (minimum 9 months) or similar technologies.
 3. Stabilized so it is beneficial to plant growth.
 4. Mature, dark brown or black in color and have an earthy odor.
 5. Contain no human pathogens.
 6. pH range of 5 to 8.
 7. Contains not more than 25% by volume wood shavings, sawdust or refuse.
- B. Submit all ingredient in the compost mix, and their relative proportions.

2.6 NUTRIENT GRADE COMPOST

- A. Provide nutrient grade compost manufactured from a composter enrolled in the United State Compost Council Seal of Testing Assurance (STA) Program. When shown, provide EARTH Food™ as distributed by: Exceptional Products, Inc, 402 Line Creek Dr., Peachtree City, GA 30269, (or approved Equal) that meets the following parameters as tested by an STA approved lab:

Plant Nutrient	% dry weight basis	TMECC Method
Nitrogen	>1.2	4.02D
Phosphorus	>.50	Calc.
Potassium	>.50	Calc.
Calcium	>.90	4.05
Magnesium	>.20	4.05
Organic Matter Content	>50%	5.07-A
Soluble Salts dS/m (mmhos/cm)	<4.0	4.08-A
Particle Size % under 9.5 mm	95% or greater	2.02-B
Stability Indicator (respirometry) CO ₂ Evolution mg CO ₂ -C/g OM/day	<2	5.08-F777
Maturity Indicator (bioassay) Percent Emergence	85% or greater	5.05A
Select Pathogens (pass/fail per US EPA Class A standard, 40 CFR 8503.32 (a)) Method 9221E	Pass	Standard

2.7 GRADED AGGREGATE BASE (GAB)

- A. GAB material shall be composed of well graded crushed stone consisting of hard, durable rock fragments free from clay and reasonably free from flat, elongated or soft pieces of organic matter.
- B. GAB shall achieve the following gradation:

Sieve Size	Percent Passing by Weight
2 in	100
1-1/2 in	97-100
3/4 in	60-95
No. 10	25-50
No. 60	10-35
No. 200	7-15

2.8 COARSE SAND

- A. Clean, washed, sand free of toxic materials free of limestone, shale and slate particles, complying with ASTM C-33 fine aggregate for concrete.
- B. Coarse sand shall achieve the following gradation:

Sieve Size	Percent Passing by Weight
3/8 in	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	2-5

2.9 COARSE AGGREGATES

- A. Refer to TABLE 800.1 GDOT Standard Specifications for No's 3, 4, 5, 6, and 57 stone, respectively.

2.10 CONTROLLED LOW STRENGTH FLOWABLE FILL

- A. Flowable fill where required shall meet the requirements of GDOT Std. Spec Section 600.3.03 for Excavateable mix design. The mix design shall produce a consistency that will result in a flowable self-leveling product at time of placement.

Property or Content	Quantity
Cement Type 1	75-100 lbs / yd ³
Air	15-35%
28-Day Compressive Strength	Maximum 100 psi
Unit Weight	90-100 lbs / ft ³

2.11 GEOSYTHETICS

- A. Separation fabric:

Woven polypropylene fabric, high modulus type with good separation capabilities conforming to the following:

Property	Test Method	Requirement
Grab Tensile Strength	ASTM D 4632	200 lbs min.
Grab Tensile Elongation	ASTM D 4632	30% max.
Mullen Burst Strength	ASTM D 3786	400 psi min.
Trapezoid Tear Strength	ASTM D 4533	75 lbs min.
Puncture Strength	ASTM D 3787	75 lbs min.
CBR Puncture	ASTM D 6241	
Apparent Opening Size (AOS)	ASTM D 4751-99a	20 to 50 US Sieve

PART 3 - EXECUTION

3.1 AGGREGATE BASES

- A. Placement
 - 1. Maximum single layer compacted course is 8 inches.
 - 2. If total thickness of base exceeds 8 inches, construct in 2 or more courses of equal thickness.
- B. Compaction
 - 1. Ensure moisture content is uniformly distributed and sufficient to achieve optimum moisture.
 - 2. Uniformly roll the base to line, grade, and section and to the required percentage of maximum dry density.
 - 3. For multiple courses, add water as necessary to achieve optimum moisture content.
 - 4. In areas inaccessible to roller, obtain the required compaction with mechanical tampers approved by the Testing Agency or Design Professional.
- C. Maintenance
 - 1. Maintain the base until it is sufficiently ready for paving courses. Repair defects by additional watering, rolling, and blading as necessary.

END OF SECTION