3877
Topsoil Borrow

3877.1 SCOPE

This Specification covers topsoil material used as a medium for establishing and sustaining healthy plant growth.

3877.2 REQUIREMENTS

Topsoil material furnished under this Specification shall be obtained from the soil horizons normally designated as "A" or "B" as defined by the Soil Science Society of America, or shall be obtained from alluvial deposits. The material shall meet the requirements given herein for the several classifications defined.

A Topsoil Borrow

Topsoil borrow for general use as a turf growing medium shall meet the requirements of Table 3877-1:

TABLE 3877-1
TOPSOIL BORROW REQUIREMENTS

	Minimum	Maximum
Material Passing 2.00 mm (**#10**) Sieve	85%	--
Clay	5%	30%
Silt	10%	70%
Sand & Gravel	10%	70%
Organic Matter	3%	20%
pH	6.1	7.8

B Select Topsoil Borrow

Select topsoil borrow for use as a plant growing medium in designated areas, such as landscape beds, shall meet the requirements of Table 3877-2:

TABLE 3877-2
SELECT TOPSOIL BORROW REQUIREMENTS

	Minimum	Maximum
Material Passing 2.00 mm (**#10**) Sieve	90%	--
Clay	5%	30%
Silt	10%	70%
Sand & Gravel	20%	70%
Organic Matter	3%	20%
pH	6.1	7.5
Extractible Phosphorous	30 kg per hectare **(26.8 pounds/acre)**	--
Exchangeable Potassium	150 kg per hectare **(133.8 pounds/acre)**	--
Soluble Salts	--	0.15 siemens per meter **(1.5 mmho/cm)**

C Premium Topsoil Borrow

Premium topsoil borrow for use as a plant growing medium in critical areas and top dressing erosion stabilization mats shall be screened and pulverized and meet the requirements of Table 3877-3:

TABLE 3877-3
PREMIUM TOPSOIL BORROW REQUIREMENT

	Minimum	Maximum
Material Passing 2.0 mm (**#10**) Sieve	95%	--
Clay	10%	25%
Silt	25%	60%
Sand & Gravel	25%	60%
Organic Matter	5%	15%
pH	6.0	7.1
Soluble Salts	--	0.15 siemens/m **(1.5 mmho/cm)**

3877.3 SAMPLING AND TESTING

The Contractor shall submit to the Engineer a list of prospective sources for topsoil borrow at least 1 month prior to time of use to allow adequate time for inspecting, testing, and approving the sources.

Texture of the topsoil shall be classified according to the Engineering definition of particle size. Texture shall be determined by the method described in AASHTO T 88.

The current standard testing procedure of the University of Minnesota, Soil Science Department, Soils Testing Laboratory shall be used for determining pH, percent of organic matter, extractible phosphorous, exchangeable potassium, and soluble salts.

3878
Sod

3878.1 SCOPE

This Specification covers sod used for landscaping and erosion control.

3878.2 REQUIREMENTS

Sod shall consist of densely-rooted bluegrass or other permanent turf grasses as approved by the Engineer.

The sod shall be cut in uniform strips of not less than 300 mm **(12 inches)** in width and to a uniform thickness of 20 mm (¾ **inch)** or more as necessary so that practically all of the dense root system will be retained and be exposed in the bottom side of the sod.

When the sod is cut, it shall be sufficiently moist to withstand exposure and handling during the transplant operations. The sod shall have been raked free of debris and the top growth trimmed to a height of 25 to 75 mm **(1-3 inches)**.

All sod furnished shall be in acceptable condition upon delivery to the work site. The sod strips shall not have dry or dead edges upon delivery. Between June 1 and September 15, sod shall not be cut more than 24 hours in advance of delivery.

A Lawn Sod

Lawn sod shall have a lush appearance, be dense, have a uniform texture, and bright in color throughout. The sod shall not contain grass with blade widths of 5 mm **(0.2 inch)** or greater. The sod shall be weed-free and shall contain no more than 5 mm **(0.2 inch)** of thatch over the base soil. The sod shall consist of a blend of 4 or 5 fine leafed turf grasses. At least two-thirds of the grasses, as determined by initial seeding proportions, shall be of improved and elite type Kentucky bluegrass varieties as defined in 3876.2C.

B Erosion Control Sod

Sod used for general road side purposes and for erosion control shall be a low maintenance type, dense, and of uniform texture. The sod shall be free of noxious weeds and shall contain less than 3 percent grassy weeds, sedges, broadleaf weeds, or coarse grasses. The sod shall consist of a blend of 4 or 5 fine leafed turf grasses. At least two-thirds of the grasses, as determined by initial seeding proportions shall be of acceptable low maintenance Kentucky bluegrass varieties as defined in 3876.2C.

B1 Netting

The netting required in ditch bottoms in accordance with 2575.3I2, at a minimum, will meet the erosion control netting 3883 specifications with respect to material type, mesh openings, weight, and tensile strength.

B2 Anchors

On slope applications, or in ditch bottoms with intermittent flow less than 1.5 m/sec. (**5 feet/second**), or in ditch bottoms where the sod is allowed to root before carrying water, the staples used to anchor the sod shall be U shaped 3 mm **(0.12 inch)** diameter or heavier steel wire having a span width of 25 mm **(1 inch)** and a length of 200 mm **(8 inches)** from top to bottom after bending.

In ditch bottom applications with flow velocities greater than 1.5 m/sec. (**5 feet/second**), or in ditch bottoms susceptible to continuous flow before the sod can root into the ground, the shingled sod shall be overlaid with snow fence, chain link fence, jute, or a biodegradable netting with a minimum life span of 3 months over the top of the sod and securing it to the sod with anchors. The method of anchoring the overlaid material and sod to the ground shall be in accordance with 3888.2C, or wood stakes as appropriate. Unless directed otherwise by the Engineer, the chain link fence, jute or biodegradable netting does not need to be removed. Snow fence or other plastic non-biodegradable material shall be removed after the maintenance period or effective use period as determined by the Engineer.

C Salt Resistant Sod

Salt resistant sod for use along boulevards or in a potential salt environment shall be a low maintenance type, fine leafed, and of uniform texture. The sod shall be free of noxious, broadleafed, and grassy weeds and shall contain less than 3 percent coarse grasses. The sod shall have originated from the blend of grass seed shown in Table 3878-1.

TABLE 3878-1
SALT RESISTANT SOD

Grass Type	Acceptable Varieties	Minimum Percent by Mass	Maximum Percent by Mass
Alkali grass	Fults, Salty	15	20
Red fescue	Dawson, Cindy	15	20
Park Kentucky bluegrass	Park	10	15
Improved Kentucky bluegrass	*(A)*	20	30
Low Maintenance Kentucky bluegrass	*(B)*	20	30

(A) Listed in 3876.2C

(B) Listed in 3876.2C excluding Park Kentucky bluegrass

D Mineral Sod

Mineral sod shall be commercially produced on or harvested from mineral based soils. The soil upon which mineral sod is produced or harvested from shall consist of less than 10 percent organic matter by mass. The sod shall be dense, fine leafed, and of uniform texture. The sod shall be free of noxious, broadleafed, or grassy weeds and shall contain less than 3 percent coarse grasses. The sod shall consist of a blend of 4 or 5 fine leafed turf grasses. At least 35 percent of the grasses, as determined by initial seeding proportions, shall consist of improved type Kentucky bluegrass varieties defined in 3876.2C.

3878.3 SAMPLING AND TESTING

Prior to delivery to the Project, the Contractor shall furnish the Engineer a certification from the grower stating the grass varieties contained in the sod. No sod shall be placed until the certification of varieties contained in the sod has been reviewed and accepted by the Engineer.

Test samples for determination of soil organic matter content of mineral sod will be obtained from the soil exposed in the bottom side of the sod rolls. Testing for organic matter content will be in accordance with ASTM D 2974.

The Department reserves the right to conduct its own inspection at any time of sod in the production fields or at the Project site. Representative samples of the sod shall be furnished upon request, in which case no sod shall be delivered until the samples have been approved.