The prepared surface of topsoil or soil shall be uniform, free of gullies, rivulets, crusting, caking and satisfactorily shaped and finished the topsoil depth above the final grade. Surface shall be raked smooth prior to seeding on areas with a flatter than 3:1 slope . On areas with a 3:1 slope or steeper the topsoil surface shall be opened up by using the dozer cleats or other methods. The tracking shall be perpendicular to the natural flow of water except for areas 4:1 or flatter.

All seed bed areas in front of residences, commercial properties, etc. between curb and sidewalks or as indicated on the plans, shall be free of all stones 1 inch (25 mm) or greater in any dimension. Seed bed shall have a smooth surface. Hand raking will be required if site is inaccessible to machines or if machines do not provide results equivalent to hand raking.

Topsoil is not required for slopes steeper than 2:1. Shale cuts steeper than 2:1 shall be allowed to deteriorate to a soil type surface texture prior to seeding.

Fertilizer, lime or other soil amendments shall be applied to the soil or topsoil surface in separate operations. The fertilizer, lime or other soil amendments shall be incorporated into the soil or topsoil at a depth of 2 to 4 inches. The fertilizer, lime or other soil amendments may be incorporation into the soil or topsoil together or separately.

870.14 Seeding Methods. Seeding operation shall not be performed unless the area is properly prepared. When the seedbed or topsoil becomes compacted prior to seeding, the surface shall be redisked or loosened.

All seed shall be thoroughly mixed and then evenly sown over the prepared areas at the rates listed in Table 2. No seed shall be sown during high winds. Equipment shall be operated in a manner to ensure complete coverage of the entire area to be seeded.

When broad cast seeding, he Contractor shall seed classes 1,2, 3A and 3B between August 15 to October 30. When seeding classes 1,2, 3A or 3B is necessary prior to these months, the seeding rates shall be increased by 10 percent.

Hydro seeding shall be allowed for Classes 1, 2, 3A, 3B, 3C and 7. Hydro seeding applies the mulch, seed, water and fertilizer in the same operation. Use hydro seeding between March 1 and October 15.

All seeding performed between October 30 and March 1 shall be temporary seeding in accordance with Supplemental Specification 877 or CMS 207. Permanent seeding may be performed with permission for projects completed within the same calendar year.

Seeding shall be done prior to or concurrently with 660, 667, 668 or 670.

Crown vetch seeding shall not be permitted during September or October.

Wildflower classes 5 and 6 shall be seeded in the fall (September - October). Spring seeding may be allowed with approval. Class 4 shall be seeded during the spring (March - May) when possible.

Seeding native grasses and wildflowers in Classes 4, 5 and 6 shall be done with a rangeland type, slit seeder or native seed grass drill. Seeding native grasses shall be performed as a split rate application with no less than two passes in different directions. Broadcast seeding shall only be allowed with approval of the Engineer. Cultipacking or rolling will be required when broadcast seeding.

When broadcast seeding the area shall receive a light raking followed by rolling on flat surfaces or the area shall be tracked by a dozer on slopes. This work ensures a good seed soil-contact and shall be done immediately after sowing,.

870.15 Mulching Operation. Materials used for mulching shall be straw, wood fiber, organic compost, or biosolids compost. Materials shall be reasonably free of weed seed, foreign materials, or other injurious materials that would prohibit seed germination.

Within 24 hours after any given area is seeded, straw mulch shall be evenly placed over all seeded areas at the following rates:

Seeding from March 15 to October 15:	2 tons per acre (0.5 t/1000 m^2)
Seeding from October 15 to March 15:	3 tons per acre (0.7 t/1000 m^2)

Mulching materials shall be kept in place with asphalt emulsion applied at a minimum rate of 60 gallons per ton (250 L/t) of mulch or with tackifiers per the manufacturer's recommendations. An additional application at a rate of 30 gallons per ton (125 L/t) of mulch shall be applied to the shoulder area, starting at the berm edge and extending out for a distance of 10 feet (3m). Asphalt emulsion for vegetative mulch shall conform to 702.04. Emulsion shall be nontoxic to plants and shall be so prepared that will not change in transportation or storage.

Displaced mulch shall be replaced at once but only after all work proceeding the seeding operation or that which was damaged during the mulching operation has been acceptably repaired.

870.16 Wood Fiber Mulch. Fiber mulch shall consist of pure wood fibers manufactured expressly from clean wood chips. The chips shall be processed in such a manner as to contain no lead paint, varnish, printing ink, petroleum based compounds or seed germination inhibitors. Fiber shall not be produced from unknown origin recycled material such as sawdust, paper, cardboard or residue from chlorine bleached pulp and paper mills.

The cellulose wood fiber mulch must maintain uniform suspension in water under agitation and shall blend with grass seed, fertilizer and other additives to form a homogeneous slurry. Tackifiers shall be manufacturer approved.

Using standard hydraulic mulching equipment, pure wood fiber mulch, tackifier, seed and fertilizer slurry shall be applied evenly over the soil surface in a one-step operation. Hydraulic application shall occur from March 1 to October 15 only. Applications rates are as follows: